Education Library

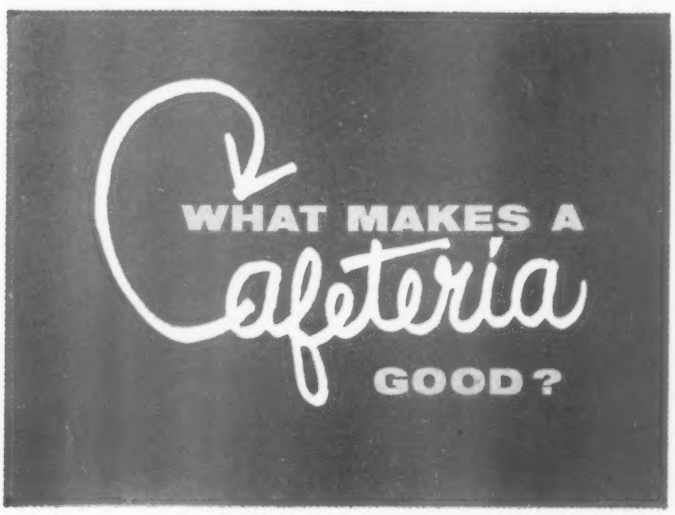
August 1959

SCHOOL MANAGEMENT

PRACTICAL SOLUTIONS TO SCHOOL MANAGEMENT PROBLEMS

SCHOOL WITHIN A SCHOOL

a better way to run a high school



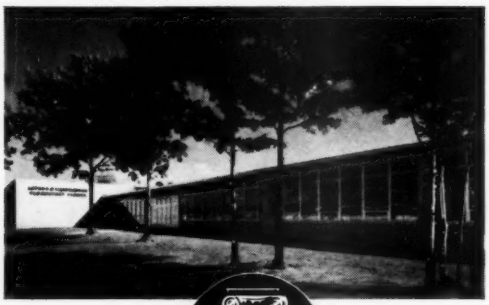
SEE COMPLETE CONTENTS ON PAGE 3

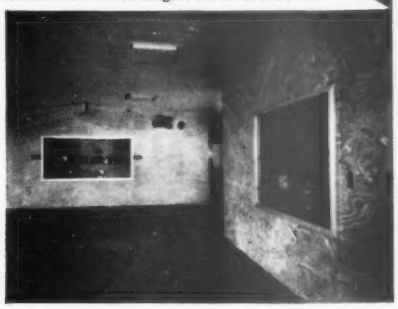
marble

an essential
note of refinement
in school building

There is no justification for excluding beauty from the purely functional requirements of the school. A school is for education, which involves not merely learning facts but the inculcation of taste in the arts, including architecture. Marble is unique in its ability to provide beauty. Yet it is also most economical because of its extremely low annual maintenance cost. The complete story is told in a profusely illustrated booklet "Modern School Building" available at no cost by writing

Arthur H. Vandenberg Elementary School, Redford Township, Michigan; Architects: Giffels & Vallet, Inc., and L. Rossetti. Associated Engineers & Architects.

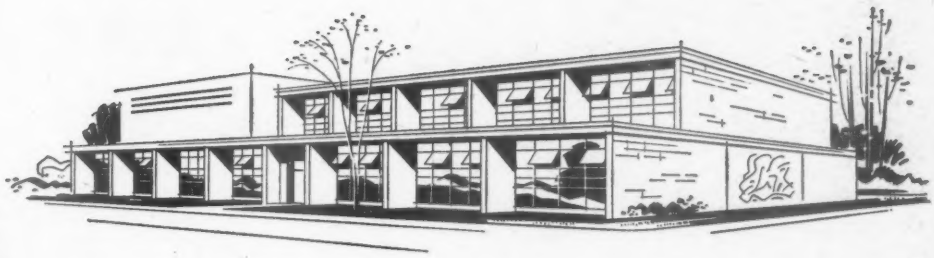




MARBLE INSTITUTE OF AMERICA, INC.

32 SOUTH FIFTH AVENUE MOUNT VERNON, NEW YORK

(Circle number 719 for more information)



"Painting school windows is expensive!"

"Painting school windows is unnecessary!"

Any big school district has *miles* of windows to paint every three or four years. And the cost is shocking!

Shocking because it's *unnecessary!* Unnecessary because it's so easy to get *Fenlite windows.*

Fenlite windows, by Fenestra, are *steel* windows . . . with all the strength only steel provides. And they never need maintenance painting.

That's because the Fenlite process protects the steel with an alloy-bonded lifetime zinc surface, passivated and chemically polished. Glazing compounds grip tighter to it. Decorative painting (only if you want it) makes a better bond.

Judged by standard 20% salt-spray test, Fenlite is from 3 to 12 times more resistant to start of white corrosion. Rust has no chance.

Best of all, Fenlite Steel Windows actually cost less than standard field-painted steel windows.

If you want to know more about the startling economies of Fenlite windows for all types of buildings, contact your Man from Fenestra, listed in the Yellow Pages, or write Fenestra Inc., Dept. S-8, 3407 Griffin St., Detroit 11, Mich.

Fenestra
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STEEL
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Your Single Source of Supply for
DOORS · WINDOWS · BUILDING PANELS · CURTAIN WALL

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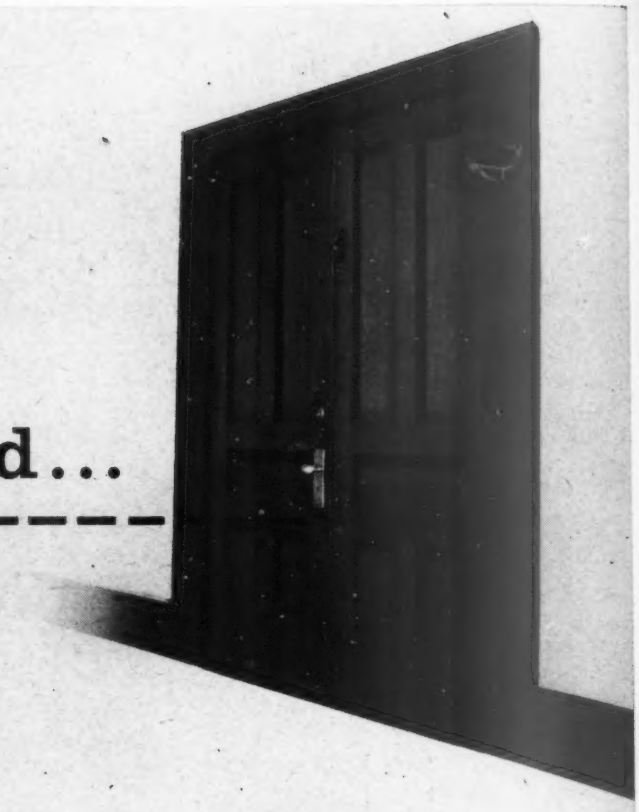

The question before the board...

How do you feel about soft drinks in schools?

The subject may come before your Board. When it does, talk it over with your local bottler. He's a tax-paying local businessman, dealing in products which contribute to the local economy in the same way as other food products available on school premises.

He's entitled to a fair hearing. Happily, such a hearing has been forthcoming in most areas. Here are the facts:

1. DIETARY VALUE: Soft drinks are accepted in dietetic planning as an "accessory food." Like relishes, they accent the diet healthfully. Thus they add flavor and variety to menus that otherwise may seem routine.

Soft drinks provide 100 calories of food energy per 8 ounces in easily assimilable form—a helpfull contribution during the school day to pupil alertness and interest.

2. WHOLESOMENESS: As you know, the body loses 2½ quarts of fluid each day. Soft drinks help restore body fluid balance. Carbonation adds zest and palatability. In addition, soft drinks aid digestion and stimulate appetite. Because they are liquid, soft drinks pass quickly through the mouth, with virtually no involvement in oral conditions related to dental problems. Recent dental research reaffirms this thinking.

3. SOCIAL VALUES: Availability of soft drinks within school limits encourages youngsters to stay on school property. Soft drinks can be an important aid in fostering desirable behavior patterns. Social activity is more readily supervised and promoted.

These are some of the reasons, we believe, why soft drinks have a desirable place in the food and refreshment facilities of our school system. If you would like more complete and thoroughly-documented literature on the food, health and social values of bottled soft drinks, we will be happy to send them to you.

AMERICAN BOTTLERS OF CARBONATED BEVERAGES

WASHINGTON 6, D. C. • *NATIONAL ASSOCIATION OF THE BOTTLED SOFT DRINK INDUSTRY*

A non-profit association of manufacturers of bottled soft drinks, with members in every state. Its purposes: to promote better understanding of the industry and its products, and to improve production and distribution methods through education and research.

(Circle number 704 for more information)

Vol. 3 No. 8

S | M

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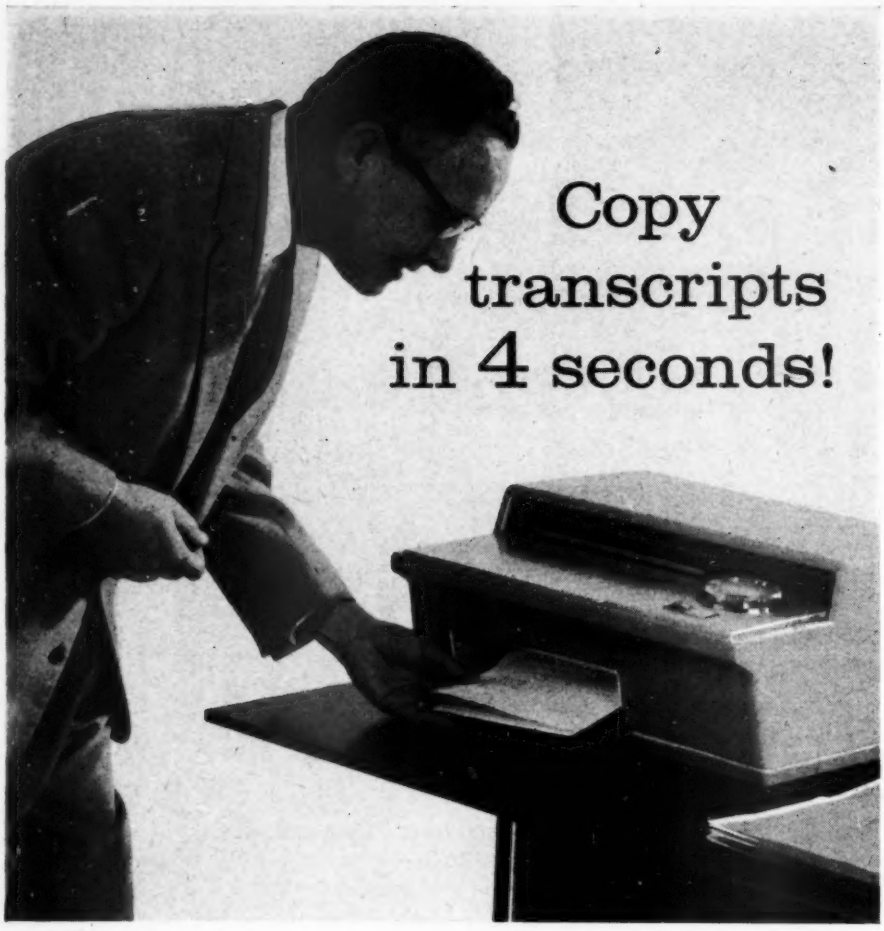

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22 West Putnam Ave., Greenwich, Conn.

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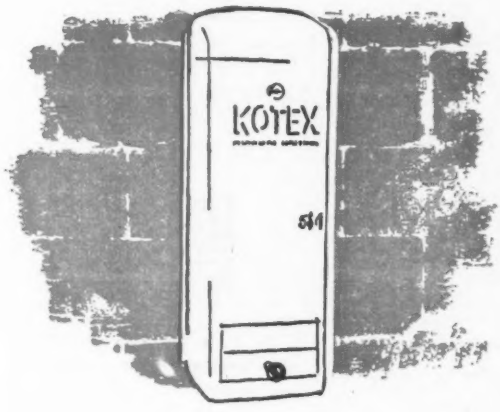
CHANGE OF ADDRESS: To insure continuous service, send your new address (and moving date) 45 days before moving.

Include old address as it appeared on previous issues (if possible send label from magazine). Do not depend on the post office to forward either the change of address or your magazines.

No school should be without this

Very personal service

rest room vendors for Kotex feminine napkins



Vending machines for Kotex belts are also available at a nominal cost.

More than just a convenience, handy, coin-operated vendors make Kotex feminine napkins readily available at all times. They provide a needed and appreciated service for students and teachers. Vendors are available without charge.

When you offer Kotex, you provide the feminine napkin most women prefer. Only Kotex has Wondersoft—the gently spun covering that *won't rub, won't chafe* . . . and Kotex has the extra absorbency that's instant and complete.

** ** ** ** ** ** ** ** ** ** ** ** ** ** ** * CLIP AND MAIL ** ** ** **

Kotex products sponsor free, a complete program on menstrual education for both elementary and high schools.

The Story of Menstruation—a delightful 10-minute, 16-mm. Walt Disney sound and color film which gives a warm, natural explanation of just what happens during menstruation and why.

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☐ Please send me complete details and ordering information on the Kotex Educational Program

☐ Please send information on the vending machine service for Kotex feminine napkins.

NAME_____

ORGANIZATION_____ TITLE_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

(Circle number 716 for more information)

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Colorful, attractive Dixie Matched Food Service makes every meal festive—appetizing. Yet there's never a question about cleanliness or the danger of cross-infection because of faulty dishwashing. Specially processed for superior food service, this Dixie Service for Schools is available in a complete range of sizes for every portioning need. Today, write for samples and information about this attractive, single-use

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COSTS NO MORE TO USE!

EVERY DAY, MORE AND MORE SCHOOLS ARE PROVING THE ECONOMY AND EFFICIENCY OF DIXIE SERVICE!

Dishwashing is almost eliminated. Clean-up takes only minutes instead of hours. The small cost is more than offset by dishwashing savings. Hard-to-get help isn't wasted on menial tasks. Close-nesting Dixie Service can be stored in less than half the space. And you need never worry about breakage and high replacement costs. Trays are light and easy to carry—the line moves along more swiftly. Ask us about the actual experiences of other schools.

DIXIE CUPS ARE PRODUCTS OF AMERICAN CAN COMPANY

Dixie Cup Division of American Can Company, Easton, Pa., Chicago, Ill., Darlington, S. C., Fort Smith, Ark., Anaheim, Cal., Lexington, Ky., Brampton, Ontario, Can. ® "Dixie" is a registered trade mark.

(Circle number 705 for more information)

Wayne's new **OPERATION DOUBLE QUICK** assures

EXTRA-FAST DELIVERY OF SCHOOL BUSES

before school starts this Fall!

WAYNE SOLVES THE PROBLEM OF RUSH FALL DELIVERIES!

Large-corporation scheduling and production facilities make it possible for Wayne to end a problem that has been plaguing school bus buyers every year. Now, thanks to Wayne's new "operation Double-Quick" you can take delivery of your bus as soon as ten days after placing your order. Choice of capacity, chassis and accessories to meet your requirements.

LARGE-CORPORATION PLANNING-AHEAD DOES IT!

As a result of a comprehensive survey, Wayne has created a "pool" of unassigned bodies and chassis to meet the annually recurring rush of orders for late summer and early fall delivery. Wayne's purchasing power permits the stockpiling of materials, eliminating any rush season shortages that often delay a rush delivery. And Wayne's production facilities permit the fast, efficient mounting and finishing of the buses without sacrificing quality manufacturing for speed.

AND YOU GET AMERICA'S NO. 1 SCHOOL BUS!

No matter how fast Wayne buses are delivered, they are always the safest school buses on the road, nationally recognized as the buses that pioneered all of the important safety features now in use. Wayne buses will safely, economically and efficiently transport your students well beyond the life expectancy of ordinary school buses. There are many reasons *why* Wayne is America's No. 1 School Bus and your best buy. Ask your Wayne distributor for a demonstration right away or contact:

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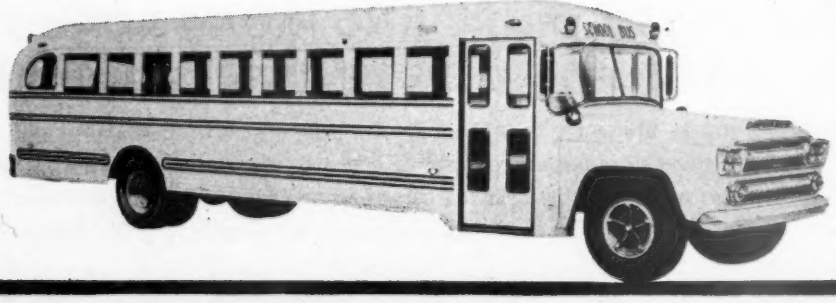
UNIQUE LEASING AND FINANCING PLANS

Wayne's financial strength, production volume and complete knowledge of the school transportation field permit tailored leasing and financing programs others are often unable to match. Your Wayne distributor will show you a plan designed to meet your needs.



(Circle number 732 for more information)

YOURS FOR THE ASKING

These booklets—promotional and otherwise—contain ideas of possible value to you and your schools. Each item listed will be sent to you without cost.

FOR FREE COPIES, USE READER SERVICE CARD

Audio-visual. Schoolmen are offered free any one of five catalogs of latest releases in records, filmstrips and teaching aids. The catalogs, prepared by Educational Audio-Visual, cover high school English materials, elementary English materials, social studies, elementary music and rhythm, and secondary school music.

For a free copy of any one of these catalogs, circle number 844 (high school English); number 849 (elementary English; number 851 (social studies); number 853 (elementary music); number 839 (secondary music). All numbers appear on the Reader Service Card.

Building materials. A complete American Institute of Architects file on the Thinlite Curtain Wall System has been issued by Owens-Illinois. Included are detailed descriptions of new rectangular, prismatic glass shapes and ceramic fired-on colors developed since the system's introduction last year.

For a free copy of this file, circle number 866 on Reader Service Card.

Chalkboards. A new 24-page brochure, describing and illustrating its full line of chalkboards, bulletin boards and aluminum trim has been issued by Claridge Products & Equipment Co.

For a free copy of this brochure, circle number 862 on the Reader Service Card.

Kitchen shelving. An illustrated brochure on multi-purpose shelves has recently been published by the Metropolitan Wire Goods Corp. It outlines, with specifications, the company's "Do it yourself" shelves for kitchen storage.

For a free copy of this brochure, circle number 882 on the Reader Service Card.

Language laboratories. Complete information and specifications on Language Laboratories are available in a catalog published by Shamark Distributors, Inc. Included are illustrations of language labs and complete descriptions of various components of the system.

For a free copy of this catalog, circle number 873 on the Reader Service Card.

Language labs. A new analysis of the language laboratory as a factor in teaching, "Costs and Efficiency of the Language Laboratory," has just been published by Magnetic Recording Industries.

For a free copy of this booklet, circle number 858 on the Reader Service Card.

Lighting. A 12-page loose-leaf information file provides descriptions of six types of fluorescent fixtures and "Magna" incandescent units. All fixtures listed utilize the "balanced brightness" principle developed by Ainsworth Lighting, Inc.

For a free copy of this file, circle number 897 on the Reader Service Card.

Light control. An eight-page bulletin on lighting control for schools and similar installations has been published by Vickers, Inc. It includes photographs and dimensional drawings of dimmer units, power units, consoles and other components of the system.

For a free copy of this bulletin, circle number 890 on the Reader Service Card.

Maintenance. An informative new catalog and maintenance guide has just been published by the George B. Robbins Disinfectant Co. The two-color catalog includes helpful information on sanitation and building maintenance problems and includes many helpful hints.

For a free copy of this catalog, circle number 886 on the Reader Service Card.

Microscopes. A line of 15 precision microscopes manufactured by D. P. Bushnell & Co. is pictured in a new catalog. Each model is carefully illustrated.

For a free copy of this brochure, circle number 899 on the Reader Service Card.

Modern lighting. "The A-B-See of Modern School Lighting" is the title of a carefully documented, well-illustrated booklet put out by Smoot-Holman Co. The 24-page booklet gives illustrations of various types of lighting fixtures with a complete chart on their performance. It is divided into two sections: classroom lighting and lighting school areas other than classrooms.

For a free copy of this booklet, circle number 889 on the Reader Service Card.

Optical devices. A new catalog issued by the Edmund Scientific Co. lists more than 1,000 optical items used in the schools produced by the firm. Each device is described in depth and illustrated.

For a free copy of this brochure, circle number 864 on Reader Service Card.

Peg boards. A beautiful 20-page brochure outlining school uses of peg boards has been prepared by Drs. James D. MacConnell and Raymond C. Schneider of the Stanford University School Planning Laboratory. It shows the uses to which the peg board has been put in many different situations, with specifications for hooks and other holders.

For a free copy of this brochure, circle number 884 on the Reader Service Card.

Records and equipment. A 44-page booklet published by Remington Rand

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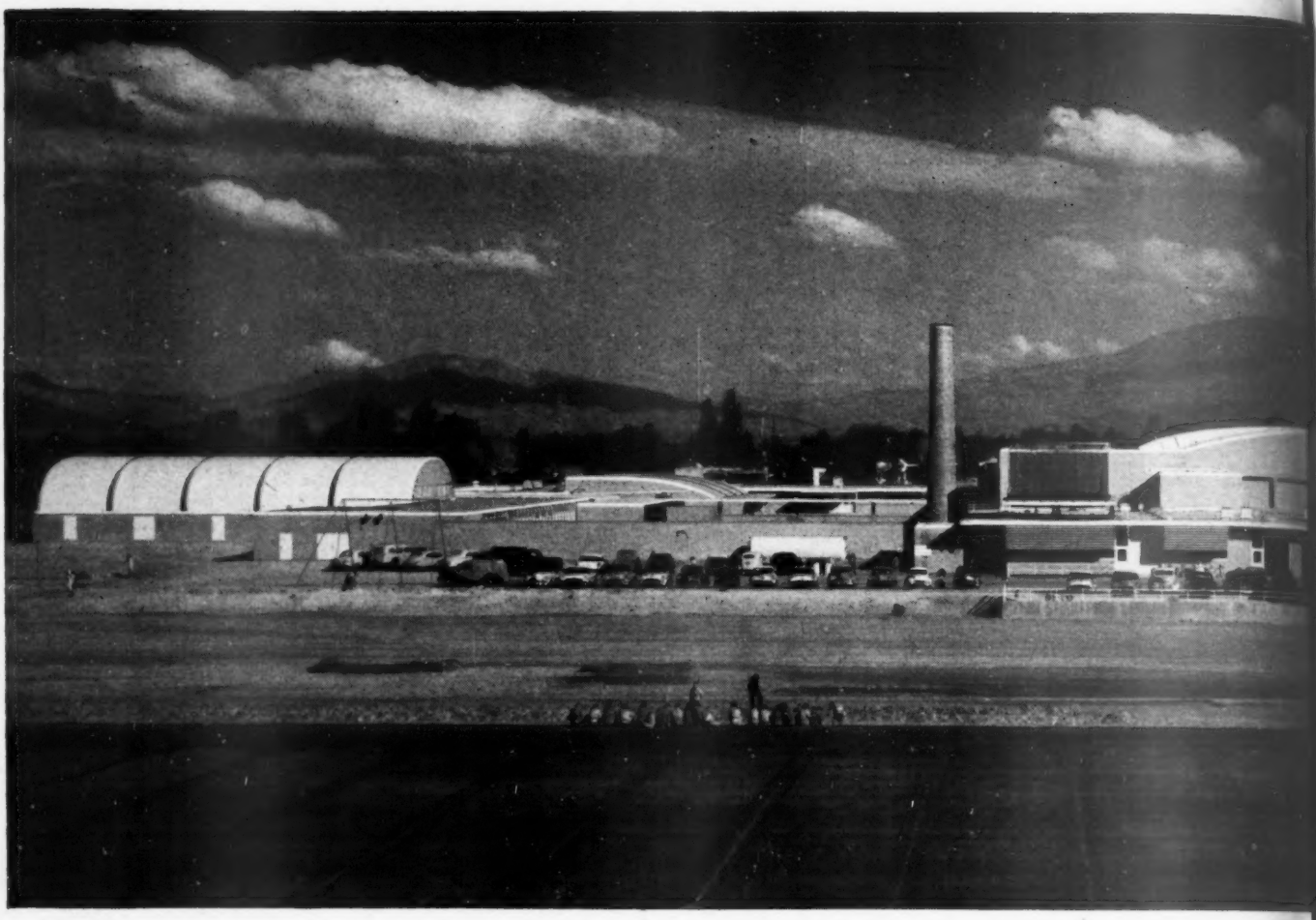
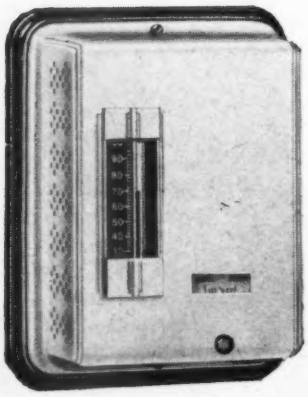


The Right Way to Control Air
Johnson Pneumatic Temperature



For reasons of cost as well as comfort, an air conditioned school the size of Catalina High School has to have an efficient temperature control system.

This spacious, campus-type school contains nearly a quarter million square feet of floor space. Besides classrooms, its expertly planned facilities include numerous special-purpose rooms, a library, a science and homemaking wing, shops, a cafeteria for 500, an auditorium seating 930 and separate girls' and boys' gymnasiums, the latter a 4,000-seat building.

A Johnson Pneumatic Temperature Control System gives this modern school the very finest comfort standards. With all rooms individually controlled by Johnson Thermostats, the system meets the special heating and cooling needs of each room and maintains ideal thermal conditions for every purpose.

The flexible, precise operation of the control system keeps heating and cooling costs at a

Catalina High School, Tucson, Arizona. Scholer, Sakellar & Fuller, architects; John Paul Jones, mechanical engineer; L. C. Anderson Co. and J. J. Craviolini, general contractors; Southern Arizona York Refrigeration Co., mechanical contractor; all of Tucson.

Refreshing, comfortable classroom temperatures assure a productive environment for teaching and learning. Johnson Heating-Cooling Thermosats control over 140 centrally supplied room air conditioning units in the school.

The use of pneumatic controls assures efficient, economical operation of the 31 central fan systems that supply conditioned air for the gymnasiums, auditorium, library and other large spaces. All rooms are individually controlled.

The thermostat on the wall takes care of the cooling problem when cooking ranges are in use. The Johnson System is designed to safeguard student health and comfort in special-purpose rooms as well as in regular classrooms.

Conditioning: Control

minimum. There is no wasteful overheating, no expensive overcooling. The use of pneumatic controls keeps costs down in other important ways, too, for they are easier to understand, require less supervision, less maintenance and less power to operate than any other type of controls.

When you build or air condition, let the specialist Johnson organization provide a control system that is engineered for both comfort and economy. Your consulting engineer, architect or local Johnson representative has all the facts. Johnson Service Company, Milwaukee 1, Wisconsin. 105 Direct Branch Offices.

JOHNSON CONTROL

PNEUMATIC SYSTEMS

DESIGN • MANUFACTURE • INSTALLATION • SINCE 1885

(Circle number 715 for more information)

Schools buying 50% more Royal Electrics in 1959*

AND HERE ARE SOME OF THE REASONS WHY...

Greater reliability—Royal Electrics are engineered to stand up under hard daily use by many classrooms of students—the most important requirement of schools.

Useful, functional features exclusive with Royal—such as Magic® Margin, Twin-Pak® Ribbon and Touch Control®—make typing easier to teach and easier to learn.

For more details or for a free demonstration and trial, call your nearby Royal Representative.

ROYAL® *electric*

Product of Royal McBee Corporation,
World's Largest Manufacturer of Typewriters.

*First 6 months 1959 compared with last 6 months 1958

THERE ARE MORE ROYAL TYPEWRITERS IN SCHOOL AND OFFICE USE THAN ANY OTHER MAKE.

(Circle number 739 for more information)

SM LETTERS

Non-marking

SIR: Sometimes two good companies can be working to accomplish the same result without either apparently realizing how much success the other may be having.

A glaring example of this situation was recently exhibited by the two-page advertisement of S. C. Johnson & Son that appeared in SCHOOL MANAGEMENT *(April '59)* with the headline, "end black rubber mark problems. . . . and get ALL the floor protection you pay for."

This is certainly a worthy objective for Johnson just as it has been for the Bassick Co. The chances are though, that we wouldn't have been concerned *enough* to write you this letter if the ad hadn't been illustrated with a photograph showing three rubber-heeled shoes and three *Bassick Casters* (one with its embossed B-A-S-S-I-C-K clearly visible for all to see).

Usually nothing pleases us any more than to have some nice advertiser illustrate his ads with a picture showing our product. We would have loved the ad, mentioned above, too—IF in it, the advertising artist hadn't smeared a big black X across the *casters* and shoes. We're afraid this plus the headline "end black rubber mark problem" might cause some of your readers erroneously to jump to the conclusion that Bassick Casters make black rubber marks on floors.

We would hate to have this happen. We thought *everyone* knew about our non-marking wheels.

FRANCIS HUMMEL
THE BASSICK CO.
BRIDGEPORT, CONN.

Quality of lighting

SIR: I read with interest your article entitled "How we relighted our old schools" (*SM, May '59*). It appears that in the relighting program which Trenton has undertaken they have omitted consideration of a very important half of the lighting story, namely "lighting quality."

The type of lighting fixture installed in the Trenton schools is specifically referred to in the New Jersey State Guide as a "Type D" fixture permitted only for "quality level three" which is defined by the guide as ". . . the lowest level of school lighting approved for new school construction . . ."

The complaints about cleanliness of some louvered and lensed fixtures which would provide a higher level of lighting quality are certainly valid, although we have found that there are several good fixtures on the market now which demand little or no cleaning and maintenance.

Also, as mentioned in the article, in the early days of fluorescent lighting, auxiliaries and tubes were a major source of problems. In recent years, however, it has been possible to specify that fixtures be furnished with certified auxiliaries which, when used with tubes of recognized manufacturers, cause little or no trouble from premature burnouts. Experience of many users shows life length equal to that claimed in the article for the fixture used in Trenton.

One other part of the lighting story which seems to be overlooked in the article is the matter of aesthetics. This is of course the hardest of all things to evaluate and almost invariably is avoided by building management and custodial groups. The unmentionable characteristic of the problem of aesthetics makes it nonetheless important, and I know of no authority who is willing to state that it is a factor which can be ignored in providing a good teaching environment.

ROBERT A. HANLE
TECTONIC ASSOCIATES,
SOMERVILLE, N. J.

More Federal money

SIR: I thought that you might be interested in a recent development regarding our application for Federal aid under the National Defense Education Act. You will recall that in your article about our project (*Have you applied for Federal aid? SM, June '59*), you indicated that we were eligible to receive in the neighborhood of $500.

On May 29th we received a second letter from the State Department stating that a supplemental appropriation has made additional money available. We were informed that our supplemental allotment would amount to $700 more, which is, in fact, $200 above the original grant.

We, of course, are very happy with this new development and have already outlined how it can be used to a very great advantage in our guidance department.

EDWARD MOYER
ASSISTANT SUPERINTENDENT
WEST HEMPSTEAD, N. Y.

"MY EASIEST CLEANING JOB..."

Toilets and urinals come sparkling clean and odorless in one easy operation with Holcomb ZEN.

Swab on ZEN with handy Acrilan Swab (free with each case of ZEN.) Its powerful detergent-and-acid action cuts through stubborn stains without harm to fixtures. After a few seconds, flush it off. You're all done!

For every cleaning need, see your Holcombman!

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The Model N-400-IV Football scoreboard (illustrated above) is pleasing fans in hundreds of stadiums throughout the land. We can deliver and install with our own crew.

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Webster City, Iowa

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Trane Kinetic Barrier ventilates, warms every

Exclusive Trane Unit Ventilator system gives every pupil, in every seat, an ideal climate for learning . . . all day long

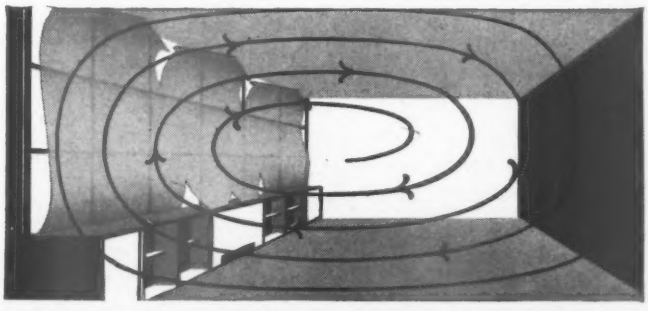
Now, every pupil—*no matter where he is seated*—can enjoy uniform comfort, with no cold window downdrafts, no hot spots, no sleepy corners.

The TRANE Unit Ventilator, with exclusive *Kinetic Draft Barrier*, solves these classroom ventilating problems by providing a rising wall of tempered air along the entire outside wall or window—and by providing *continuous* air circulation that gently distributes tempered air into every corner of the classroom, every moment the room is occupied.

Only the TRANE *Kinetic Draft Barrier* gives room-wide *powered* ventilation! Ordinary systems, with on-and-off action, can allow dead, stale air to pile up in corners. When their action is "off" there is no positive protection from chilling window downdrafts.

So when you plan to build or remodel your school, turn to TRANE for an ideal climate for learning! Have your architect, contractor or consulting engineer contact your TRANE Sales Office. Or write TRANE, La Crosse, Wisconsin.

ends window downdrafts, corner of the classroom



Continuous, room-wide ventilation! The exclusive TRANE Unit Ventilator system provides *powered* ventilation and warmth from room-wide outlets. Air from the unit rises, blends with room air, creates a gentle flow of tempered air.

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THINGS YOUR PUBLIC OUGHT TO KNOW

Basic information that schoolmen can use as a part of a community education program

Myths and facts to answer the school-baiters

If you repeat a myth often enough, it will soon be accepted as fact. Here are some widely disseminated myths about schools—and the true facts with which to answer them.

■ ■ ■ Has American education really deteriorated in the post-war period? Let's take a look at some of the facts and compare them with the myths so many school-baiters are seeking to sell.

MYTH 1: "Life adjustment" courses are edging out mathematics, language and science in our high schools.

Fact: More students are taking mathematics, language and science today than ever before. Furthermore, they are taking courses that weren't even known when some of their elders were in school.

Proof: In the last 50 years, while our population was growing less than 100%, enrollments in secondary science courses increased 600%.

Proof: In the same period, mathematics enrollment has gone up 900%.

Proof: Although the increase was not so spectacular, language enrollments went up 300% in the same period. Further, emphasis was shifted to modern languages and to being able to use them.

MYTH 2: Today's American is less well educated than his father or his grandfather.

Fact: Today's American youth is *better* educated than his father or his grandfather, and more of his fellows are educated than were educated during his father's time.

Proof: The California Test Bureau reports that tests which were taken a few years ago by 230,000 students show that they were 12% better in arithmetic and reading than children of the same grade who took the standardized tests 10 years earlier.

Proof: Another researcher, Wendell Lanton, administered arithmetic and spelling tests, originally used in 1934, to third and fifth graders of the present. Result: today's students did significantly better than their counterparts. This despite the fact that the average *age* of the children taking the tests was actually *less* than that of the children of 1934. In other words, seven- and nine-year-olds did better than children who were eight and 10 in 1934.

Proof: To be better educated, you must go to school. At the turn of the century there were only 250,000 students in secondary schools in the United States out of a total population of 76 million. Today, because of compulsory minimum age laws and a greater interest in education, there are 8 million students in high school out of a total populaton of 175 million. Total population rose 50% in six decades. High school attendance is up 1,500%.

MYTH 3: European schools are producing a better product.

Fact: American college students compare favorably with Continental students, and there are many more of them.

Proof: Only one European youth out of 20 gets a chance to go to college. This is the rigidly screened cream of the Continental crop. Our students have five times as great a chance to go to college as do their European counterparts. Even so, on a total basis, George Gallup reporting in the August, 1958 *Reader's Digest* notes that our college students appear to compare well with those in Britain. And only the top 20% of the American students would have even been given the opportunity to attend college at all under the Continental system. If the total college population of the United States compares favorably, think how this elite 20% would stack up against the British students. **End**

Inner court at Linton High School, Schenectady, N. Y.
Architects: Perkins & Will of Chicago; and Ryder & Link, Schenectady.

L·O·F visits a high school

designed for the year 2000 A.D.

On a 37-acre site in the heart of residential Schenectady is a 250,000 sq. ft. high school that was widely discussed, sometimes controversially, even before it was completed. This is Linton High School, which recently won a 1958 "Top Award in Better School Design"* for its architects.

The school consists of eight buildings joined by glass-walled corridors. There are two wings for academic studies, a library, a central "core" building for vocational and science classes, and a wing containing the auditorium, cafeteria and gymnasium.

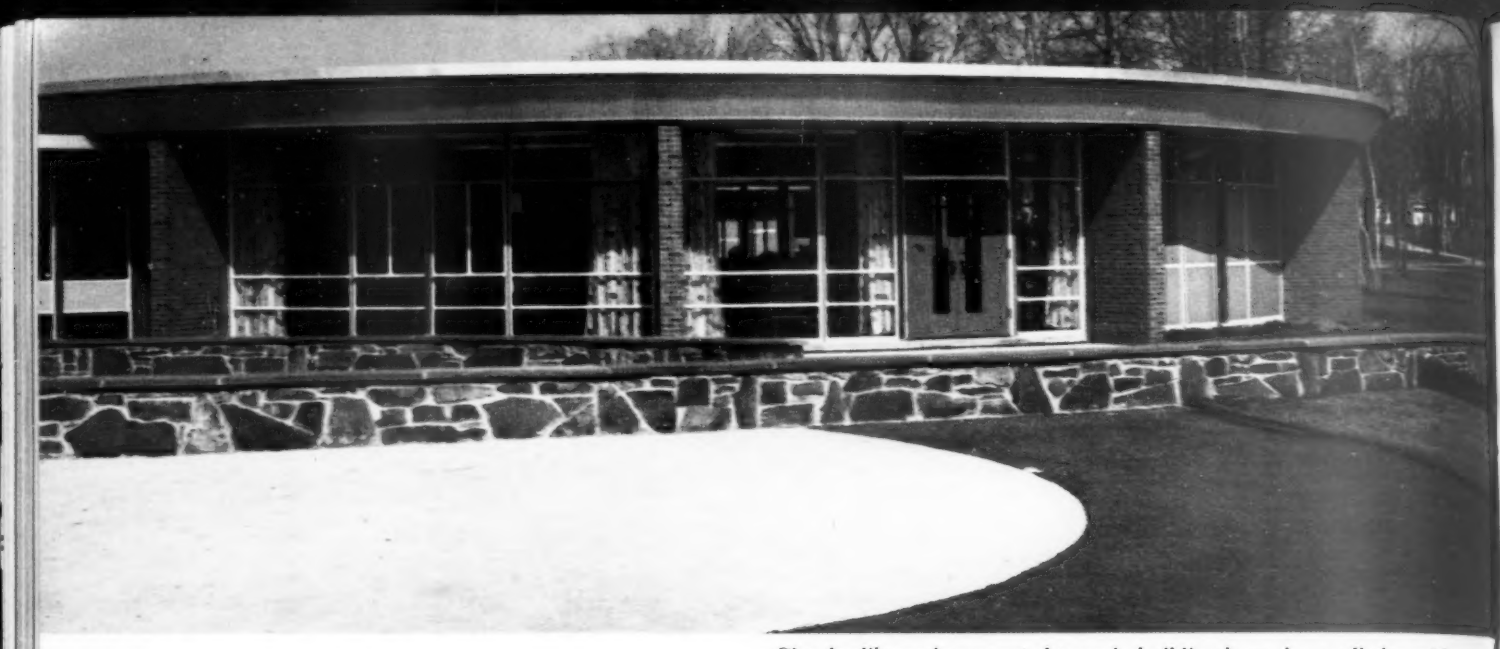
To get first-hand information about this unusual school, we arranged for a conference with Superintendent Robert E. Murray; his Administrative Assistant, Bernard F. Haake; and Principal Francis E. Morhous.

Our first question was: We understand there's been some criticism of your school. What is it all about?

Supt. Murray: Well, some people called it a "costly glass palace". But, of course, it isn't. Actual construction cost was $4,328,130. That's approximately $16.77 per sq. ft., which is a medium figure for schools in this area.

*Awarded by *School Executive* magazine.

L·O·F GLASS



Circular library is connected to main building by a glass-walled corridor.

The true cost of a school should be weighed against its effective life. Linton School should still be functional in the year 2000, because we can rearrange interior space to adjust to changing educational needs.

Let's look at cost another way. The school this replaces consisted of two monumental three- and four-story structures built between 1904 and 1911. Insurance underwriters tell us that today these stone-and-brick structures would cost well over $5,000,000.** And they wouldn't accommodate nearly as many students as our new school does.

Question: How many students will the new school accommodate?

Principal Morhous: Between 1,700 and 2,000. Our present enrollment is 1,500 and is expected to rise. But in addition to regular students, we hold adult education classes in the evenings; and, of course, summer school. So the community is getting its money's worth.

Question: What factors, would you say, dictated the type of school you have here?

Adm. Asst. Haake: Our industrial community, and the needs of the students we serve. 60% of our students will terminate their formal education here. That's why we must have a comprehensive high school to serve the needs of all our youth.

Question: I noticed that these classes are concentrated in the center of the school layout. Why is that?

Supt. Murray: We wanted to create maximum "cross-pollination" between general education for common needs and special education for enrichment needs. This "shoulder brushing" between those interested in acquiring job skills and those planning for college became a

**A study reported by the American Association of School Administrators in September, 1957, shows that in the last 20 years cost of structural steel has advanced 215%, face brick has gone up 200%. Window glass cost is up only 59% since 1926, and plate glass prices are 2% below what they were 31 years ago.

Students gravitate to the plate glass window-wall areas of the library.

A *Mirropane*® "see-thru" mirror is used to observe preschoolers as part of Family Living training.

ROBERT E. MURRAY
Supt. of Schools

BERNARD F. HAAKE
Adm. Asst.

FRANCIS E. MORHOUS
Principal

tangible goal in the architectural planning. So we opened up many of these areas with glass walls. Glass creates an "informal wall" and tends to unite school areas and activities.

Question: But how do you overcome the feeling of confinement in the inside classrooms?

Adm. Asst. Haake: The peripheral corridors are glass and the classrooms facing them have glass walls. There are outdoor courts that pierce the interior of the buildings to bring in daylight. Every classroom has some glass area so that students can see out.

Question: How do you control sun heat and glare?

Supt. Murray: The buildings are designed with overhanging roofs. Trees shade many of the windows. Draperies are drawn when visual-aid equipment is used.

Question: With so much glass in the buildings, isn't breakage a problem?

Principal Morhous: We've been in operation for over a year and *not a single pane* has been broken. (And there are about 35,000 panes of glass.)

Question: Is the attitude of the students any different than what it was at the old school?

Principal Morhous: It has improved tremendously. School spirit has never been higher. The students dress better. In fact, the attractiveness of the school is reflected in the high level of good grooming. The way they care for the school is amazing. There are no pencil marks, no litter. We have fine art reproductions hanging throughout the corridors, and not one has been defaced.

The children are doing exceptionally well in their studies. I attribute this to our well-lighted, well-ventilated, comfortable atmosphere.

Question: How do the teachers like it here?

Adm. Asst. Haake: We'll arrange for you to talk to some. We did, and here are some of their comments:

"There's no comparison between this and the old school."

"It's so much brighter and lighter."

"It's wonderful to work where there's lots of sunshine."

"There are no stairs to climb, no skylights with ropes to pull."

"Every day when I walk in here, it's like doing so for the first time."

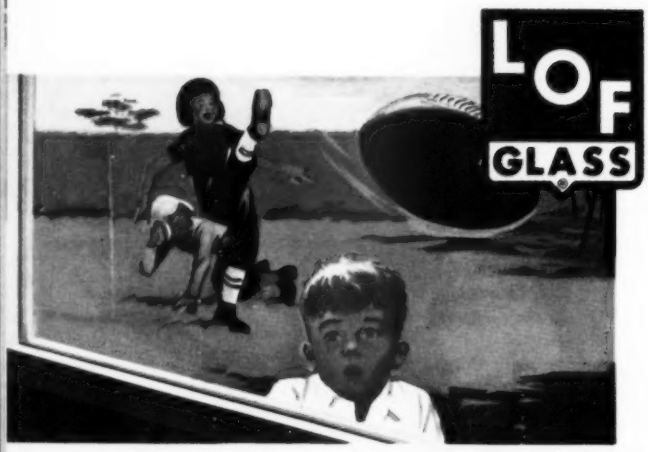
Bright, cheerful peripheral corridors look out on interior courts. Panes at floor level are *Tuf-flex*® tempered glass.

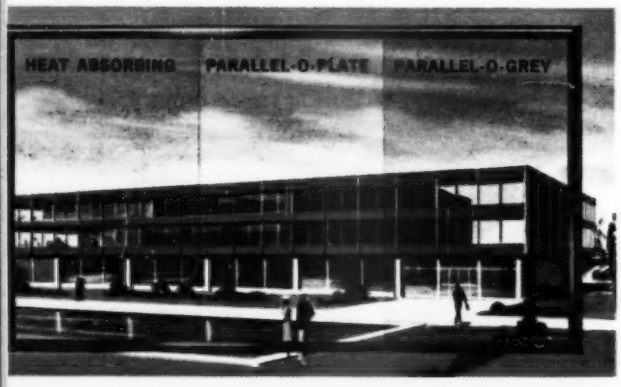
LOF GLASS

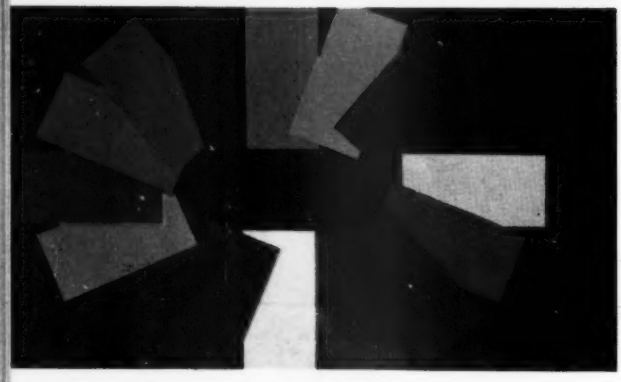
The late Harry J. Linton, superintendent of schools when the high school was in the early planning stages, specified that the school "must prepare all youth for living and accelerated life in a changing world".

Linton High School is a living monument to his farsightedness.

Administrative wing, Linton High School.







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THREE KINDS OF PLATE GLASS — To assure undistorted vision from inside and a richer appearance on the outside, use *twin-ground*, clear *Parallel-O-Plate®* Glass in the windows. For control of sun heat and glare, use *Parallel-O-Grey®* or Heat Absorbing Plate. *Parallel-O-Grey* is neutral grey in color. Heat Absorbing Plate is pale bluish-green. Both effectively reduce transmission of sun heat to keep interiors cooler, but *Parallel-O-Grey* is more effective in reducing glare.

MIRROPANE®—Wherever it is desirable to observe children and classes without their knowledge, *Mirropane*, the "see-thru" mirror, is the answer. On the brighter, classroom side it's a mirror that reflects objects in the room. From the darkened observation room, it's a window you can see through, but the children can't see you.

VITROLUX®— Used instead of masonry as an exterior facing material, also for interior partitions. Rich color, fused to the back of this clear, heat-strengthened plate glass, adds youthful beauty and cheerful character to any structure. It is resistant to weathering, crazing and checking. Standard maximum sizes of *Vitrolux* panels go up to 48″ x 84″. Special orders up to 60″ x 84″. Thickness: ¼″ plus 1/64″ minus 1/32″. Sixteen standard colors, plus black and white. Also in non-standard colors subject to manufacturing limitations.

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SM FOOD CLINIC

Richard Flambert answers your feeding questions

QUESTION: **We are in the process of building a new junior high school, the kitchen and dining room of which will also serve a new high school in a few years. I am most interested in learning about the "scramble system."** *Dorothy Wilkey, Director of Cafeterias, Mason City, Iowa.*

■ Because the old fashioned cafeteria service line was slow and cumbersome, many students avoided eating in cafeterias. This resulted in the installation of snack bars elsewhere on the campus. In many cases as much as 75% of the patronage was at the snack bar.

Studies were made as to how service could be speeded up. Some years ago, a commercial cafeteria in Cleveland installed the first scramble system. This lead was followed by several universities. About seven years ago we designed scrambles for high schools in Portland, Ore., and Ventura, Calif.

The scramble, or "square," uses a system similar to that of a chain store. Students enter a large service area by way of a turnstile, picking up their trays on the way. On three sides of the serving area are counters. They go to any counter they wish and pick up any food they wish without waiting in line for anything. They then pick up milk from a milk cooler in the center of the room and advance to the cashier's stand at the fourth side of the room, pick up their tableware and napkins, pay the cashier and go into the dining room. When they have completed their meal, they carry their trays to the dish-room port and leave.

The kitchen is generally built around two or three sides of the square so that hot and cold food can be delivered to the counters and replenished efficiently. Of importance is the fact that in many cases, a snack bar becomes part of a "square."

The speed of service is determined by the number of cashiers. The design follows strictly scientific principles of time and motion. Each cashier can take care of a given number of linear feet of counter space. For each foot of counter space there must be a given number of square feet in the whole service area. Each cashier can handle from eight to 12 customers per minute. Therefore, if there are 1,000 students to be served in two multiple periods, four cashiers averaging 10 trays per minute can take care of 500 students in about 12 minutes.

QUESTION: **We are having trouble keeping our milk well chilled before service. Sometimes it actually is turning sour by noon. We serve the milk in small containers. Would bulk dispensers solve our problem?**

■ I assume that you are referring to elementary schools. Milk should certainly be delivered the morning of the day it is served. If possible, milk should be put immediately into a cooler. If there are no coolers, there is no objection to deliveries being put case on case and covered with ice, providing not more than three or four hours elapse between receipt and service. We prefer individual containers to bulk dispensers in elementary schools because a) it is difficult for a child to carry a glass or paper cup of milk without its spilling, and b) frequently there is a lack of control of sanitation in cleaning the bulk dispenser. There is no reason for milk to turn sour in a short space of time, unless it was old or warm when delivered or it was not cared for properly after delivery.

Questions were submitted by readers of School Management. Names withheld on request. Send your feeding questions to "Food Clinic" in care of this magazine.

About the author. Richard Flambert is a partner in the firm of Flambert and Flambert, San Francisco and St. Louis, food service consultants and engineers specializing in schools and institutions. He is president of the International Society of Food Service Consultants.

"I don't believe it"

"It's a fact—this machine counts coins at the rate of 2,400 a minute!

"Why, that's 40 a second, hmmm. You say it wraps them, too?"

"Yup, with 100% accuracy."

"You say it will save 90% of the time we spend doing the job by hand?"

"Yup, probably more."

"You say schools, everywhere, are using these Klopp machines to count lunch program money?"

"Book store and activities collections, too!"

"What will the people who are now counting the coins do with the time they save?"

"If they're teachers they'll get their classes started on time. If they're clerical workers they'll get at jobs you've been wanting done a long time. These machines may indefinitely postpone the adding of another office worker."

"Incredible, I still don't believe it!"

"Is that a celluloid collar you're wearing?"

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The security, the versatility of RCA Sound Systems are priceless in every school. You can plan with your RCA Engineered Sound Distributor for a made-to-order system which uses the complete line of advanced "building-block" sound components.

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Naturally the world leader in electronics is your best source for a variety of laboratory test equipment with highest reliability built in. The rugged RCA line includes voltohmysts, oscilloscopes, audio signal generators, test generators, tube testers, etc. Several items are now also available in inexpensive kit form.

**Rigid endurance standards have been set for RCA "LIFE-TESTED" Projectors. Individual components as well as finished projectors are subjected to continuous testing to evaluate the durability and efficiency of all operating parts. "LIFE-TESTED" at RCA means better, more reliable performance from RCA Projectors.*

(left to right) RCA Television Systems; RCA Victor TV Receivers; RCA "Life-Tested"* 16mm Projectors; RCA Language Laboratories; RCA Laboratory Testing Equipment; RCA Sound Systems.

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F. P. BOGLE
Superintendent, Morristown, N. J.

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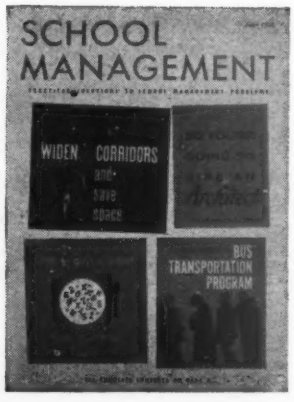

SM WHERE TO GET HELP

A guide to useful information

AUDIO VISUAL

New equipment. This 225-page plastic-bound volume is a compendium of the latest and most complete information on all current models of audio-visual equipment. Published by the National Audio-Visual Assoc., it provides an ojective set of specifications, list prices and photos of 500 models of A-V equipment. Included are 16 mm. motion picture projection, film strip and slide projectors, magnetic tape recorders, record and transcription players, screens, projection stands and accessory items. Specialized equipment for language laboratory installations is also covered. This is a valuable directory for the bookshelf of any administrator or business manager.

THE AUDIO-VISUAL EQUIPMENT DIRECTORY. *Published by National Audio Visual Assoc., Inc., Fairfax, Va. 225 pages. $4.25, if payment accompanies order.*

CURRICULUM

Educational TV. This interesting and informative paperbound book is available without charge through the Ford Foundation. It describes, in some detail, experience at both the public school and college levels in applying television as an educational tool. In addition to substantive reporting on many of the television experiences, it includes a list of the schools and colleges that have undertaken classroom television experiments, together with the names and addresses of persons to contact for information about television experiments. This book is an important summing-up of progress.

TEACHING BY TELEVISION. *Available from Ford Foundation, Office of Reports, 477 Madison Ave., New York 22, N. Y.*

INNOVATIONS

The modern touch. This readable little booklet presents a dozen or more practical case histories of educational innovations that are working successfully for school districts in Massachusetts. The booklet is one of a series produced by the Massachusetts Council for Public Schools. We strongly recommend it as a "thought starter" for the school administrator and school board member.

A MODERN TOUCH TO THE THREE R'S: *published by Massachusetts Council for Public Schools, 16 Arlington St., Boston. 86 pages. 30¢.*

PUBLIC RELATIONS

A check list. This excellent little booklet presents a systematic method for building and sustaining a good public relations program. Perhaps its most important contribution is to provide the local administrator with an evaluation instrument that separates true public relations from the "razzle dazzle" that is often associated with the name. Its 100 item check list should provide a good agenda for a school board meeting where the superintendent and board could review, together, the effectiveness and direction of their public relations program.

ABC'S OF SCHOOL PUBLIC RELATIONS: A CHECK LIST. *Published by American Association of School Administrators, 1201 16th St., N.W., Washington 6, D. C. 16 pages. Single copy, 50¢. Quantity orders: 10 for $4.*

Training the talented. This booklet is a report of a conference sponsored jointly by the NEA and the National Council of Teachers of Mathematics. The essence of the report is found in the declaration that academically talented students can—and should—take much larger loads in math than are conventionally offered in our public schools. It urges schools to give more mathematics work in the lower grades, leaving the high school years for "depth" study of mathematics in elective courses. It suggests that academically talented students should be grouped together, and offers valuable suggestions for determining the students capable of advanced work in mathematics, methods for grouping them and suggested course content from the seventh through the 12th grades. This book is particularly pertinent reading for school board members and administrators.

MATHEMATICS FOR THE ACADEMICALLY TALENTED STUDENT. *Project on the Academically Talented Student. 1201 16th St., N.W., Washington 6, D. C. 48 pages. 60¢.*

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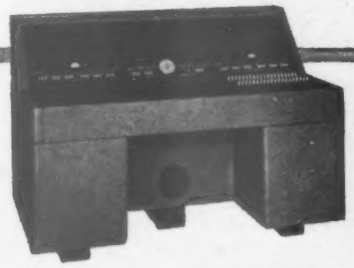

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NEWS OF THE SCHOOLS

A digest of current happenings in public education

Jet fighter makes best jungle gym

An F-94B jet fighter plane has been installed in the school yard of the Van Buskirk School in Tuscon, Ariz. The obsolete plane will be used as a jungle gym by the school's students next fall.

"It will be the most fabulous million-dollar jungle gym anyone ever saw," says Elizabeth Treadwell, school principal.

The Air Force and American Legion came to the aid of the principal recently when she decided an obsolete airplane in the school yard "would make the school seem more like a part of this world of ours."

Taken on a shopping tour along the runway at Davis-Monthan Air Force Base, Mrs. Treadwell fell in love with the F-94B as soon as she saw it. "It was the least obsolete of all the obsolete jets," she said, and because the wings are low-swept there is little danger that a youngster falling from them would be injured.

Some of the controls are being left in the cockpit, the principal said, but the canopy will be sealed shut until it is officially put into use next fall.

District experiments with shorter summer session

An experimental program to shorten the conventional seven-week summer session to five weeks is underway in Sewanhaka, N. Y., this summer.

The experiment is attempting to determine whether 24 instructional periods of 120 minutes each will result in at least comparable pupil progress with a schedule calling for 35 periods of 80 minutes.

Four courses, two in science and two in mathematics, are being offered under the intensified program. Another group of students is taking the same courses under the traditional seven-week set-up.

According to Supervising Principal Robert L. Springer, the intensified program tends to encourage able pupils to take enrichment and advanced courses and in addition makes summer session less punitive for students who have to make up work, since at least half the summer is still left free for vacation.

One other advantage that may be claimed for the shorter period: it would be possible in the future to schedule two consecutive sessions in one summer if desired. This would enable some top students to complete four years of high school work in three years.

Board, superintendent groups sponsor joint institute

A two-day management institute for board members and superintendents is being jointly sponsored in Ohio by the state school boards association and association of school administrators.

Patterned after seminars conducted by the American Management Association, the institute will be devoted to personnel appraisal and its application to improve performance.

Workshops and small group discussions will be the basis of the institute which is scheduled for early fall. Top personnel men from industry will be brought in as consultants.

The first institute will be limited to about 50 persons, mostly veteran superintendents and board members. If enough interest is shown it is expected that additional institutes will be scheduled on the topic during the fall. In future years the two associations expect to cooperate in sponsoring institutes on other subjects.

Buying in slack season saves school money

The school district of Burlington, Vt., has found that it can save at least 15% to 20% a year on purchases of all

Too good to miss . . .

Winner . . . Sixth-grader Peter Slocum of East Greenbush, N. Y., won first prize in a contest to name the new junior high school. Spurning national and local heroes, he went right to the heart of the question, came up with this unusual winning title: East Greenbush Junior High School.

Losers . . . When voters in 12 school districts in New York's Suffolk and Nassau counties turned down their budgets this year, they apparently didn't consider the human side of their actions. Under state-imposed austerity budgets, schools will be empowered to pay teacher and administrator salaries but will have to lay off as many as 1,000 cafeteria, maintenance and transportation workers. (*See story, page 29.*)

A draw . . . So far there are no winners or losers in West Hartford, Conn. An overwhelming majority of teachers there have refused to return contracts calling for what they term inadequate salaries next year. Instead they have sent special forms to the board indicating that they intend to remain in the system but not committing themselves to do so. Teachers will be able to continue looking for jobs right up until school opens in September.

Winners are losers . . . Economy measures put through by the winning side in a school board election in Aldine, Tex., last fall, turned out to be a losing step. The board approved a budget that mandated a $1.59 tax rate but set the actual rate at only $1.35, apparently figuring that the district would muddle through somehow. It didn't quite make it. When funds for teacher salaries ran out in late April, the schools had to be shut down. They weren't reopened until $200,000 of special 5% warrants were sold so that expenses could be paid.

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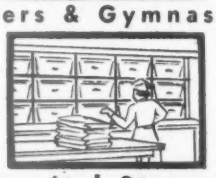

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One-piece, rounded corners make cleaning easy. Trays may be washed with soap or detergent and warm water, and are unaffected by most products found in home, hospital, gymnasium, laboratories or locker rooms.

All trays are 19" overall length, and are in 3 sizes: 9½" wide by 4⅛" high, 10¾" wide by 4¼" high, and 12¾" wide by 4¼" high.

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school materials but textbooks through ordering during suppliers' slack seasons.

The Burlington administration also pools all orders from its schools and presents one unified order, further cutting suppliers' costs.

According to Patrick Williams, superintendent of buildings and grounds, ordering at the right time also insures delivery when materials are needed.

"For the most part," Williams says, "supply houses are pretty well bogged down with orders during the summer months." The Burlington schools order office, classroom and art supplies during February for May delivery. In this way these supplies can be processed before school ends and delivered to the appropriate places. School principals do not have to worry about supplies in the fall when school is opening.

Custodial supplies are ordered in the fall because the peak load on suppliers comes during the spring when schools are preparing for summer work.

Textbooks are fair traded, Williams explained, so that it makes little difference when they are ordered. Nevertheless, most texts are ordered in the spring for delivery at the individual schools before classes are dismissed in June.

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Televised chemistry course to be offered in fall

Continental Classroom, the first network TV program for college credit, will present a new course—Modern Chemistry—during the 1959-60 academic year. The program, telecast five days a week from 6:30 to 7 a.m., local time, beginning Sept. 28th, is designed for teachers.

National teacher of the chemistry course will be Dr. John F. Baxter, professor of chemistry at the University of Florida. The program will be carried by 150 stations and the series will be credited at 265 colleges.

The course in Modern Chemistry will consist of "a study of the fundamental principles of chemistry and a survey of recent developments." Dr. Baxter will be aided in preparing his programs by an advisory committee appointed by the American Chemical Society.

Continental Classroom's 1958-59 course will also be available for those who want to get up just a little earlier. Atomic Age Physics will be telecast over most of the same stations from 6 to 6:30 a.m. every morning.

Studies presently being conducted indicate that the physics course was very well received by those who watched it during the past year.

Interviews with 400 of those persons who took the course for credit indicated that the program had been achieving its major objective—the improvement of science teaching in high schools. Better than 80% of those interviewed said they would introduce new demonstration techniques into their classrooms as a result of the course, while 50% said they had acquired new knowledge and would bring new concepts to their students.

Federal aid rejected by Cincinnati board

An offer of $110,000 in Federal funds, under the National Defense Education Act, has been twice turned down by the Cincinnati Board of Education.

By identical four to three margins, the board voted not to accept the money which would have been used for employing counselors, or for additional equipment in science, languages and mathematics.

A spokesman for the board majority contended that acceptance of the money would have jeopardized the board's independence from Federal control. He gave no explanation of what control he feared.

The Cincinnati action was com-

mended by one of the state's senators, Frank Lausche, who praised the majority for "voting to take care of its own school problems."

Longer school year, day, opposed by most

Plans for increasing the school year or the length of the school day are opposed by a majority of Americans, according to a recent Gallup poll. There is, however, significantly more support for a longer day than a longer year.

The Gallup poll showed that only 23% of the populace favors increasing the year for grade schoolers. Opposing the idea were 70% of those polled. There was more support for a longer high school year, with 26% favoring this proposal and 67% registering their opposition.

The idea of lengthening the school day in grade schools appealed to 32% of those asked, while 61% said no. The high school day should be lengthened according to 43% while only 49% expressed opposition to this idea.

A larger percentage of college-educated people (39%) favor extending the high school year. Main opposition came from small towns and rural areas where a lengthened year would cut drastically into the time teen-agers could spend on the farms.

Impact of budget defeats being felt in New York

What happens in a school district where the voters have turned down the proposed budget? Twelve districts in New York State are finding out.

Members of the local boards have elicited from the state some general guidelines of what they can and cannot provide for in so-called "austerity budgets." Here are some of the results:

In the Plainview-Old Bethpage district, there will be an enrollment increase of 1,400 in September. No allocation can be made to buy new textbooks for these students. In the same district a new high school and two elementary schools are scheduled to open during the year. It will cost $40,000 to completely furnish these buildings with desks and other equipment. This cannot be allocated.

Unless a cafeteria program is completely self-supporting, it must be abandoned. Even the milk program

How to improve English instruction in your schools

Few school people know of the growing list of long-playing records being made *specifically for schools*. For example, consider these three recent releases:

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2) BEOWULF-CHAUCER:

Excerpts brilliantly read by Helge Kokeritz and John C. Pope. Professor Kokeritz is one of the world's leading authorities on pronunciation of early English. Price: $5.90

3) MERCHANT OF VENICE:

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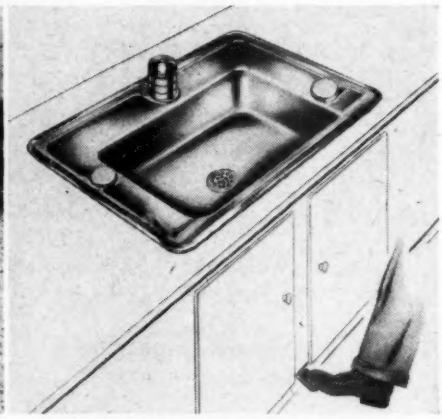

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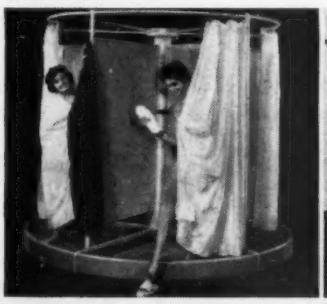

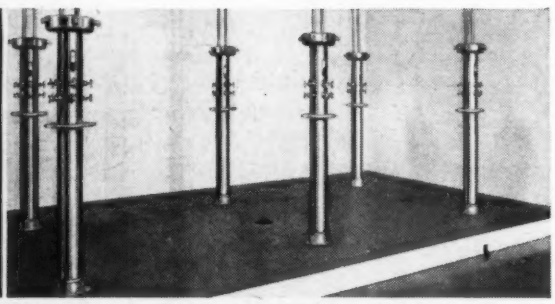

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now receiving Federal assistance must be dropped.

Any elementary child living within two miles of his school will have to walk. High schoolers will have to walk up to three miles to and from schools.

No money can be allocated for any capital expenses or for more than absolutely minimal janitorial services. And what will all this save? In one district that turned down its budget twice, the difference between the probable austerity budget and the second one that was rejected is about $450,000, much less than 10% of the total budget that will be adopted.

How about next year? Allowing for enrollment increases that have been predicted and for maintenance and capital expenditures that must be deferred this year, one superintendent estimated that next year voters will be asked to approve budgets that are *double* those rejected this year.

Georgia to tighten school bus laws

Embarrassed to find that laws covering the transportation of cattle were stricter than those concerning school buses, Georgia education officials are taking steps to close the gap.

Figures showing that there had been 112 school bus accidents in the state this year, sparked a drive to tighten the laws covering school bus operation. Forty persons were injured and 11 killed in the mishaps.

Some of the measures being pressed include:

No school bus may be driven by a person more than 65 years old. The driver in one major accident was 67. Altogether there are 118 drivers in the state older than 65.

No person over 59 years of age will be newly hired as a bus driver.

No physically handicapped drivers will be employed. According to Joe T. DeFoor, education department supervisor of transportation there were a "number" of drivers with but one arm, one leg or deficient sight or hearing.

A proposal to allow no standees on school buses in the state will probably not be adopted because it would be too expensive. Georgia buses are expected to transport 420,000 students next year at a cost for operating each bus of $2,638. If no standees were allowed (20% of a passenger load may stand under present laws) it would be necessary to add 2,300 buses to the current 4,721 in operation. The state estimates that this would cost approximately $6 million.

School district loses when superintendent leaves

Andrew L. Smith resigned as school superintendent at Spirit Lake, Idaho, a move that presumably will cost the school district a gift from one of his admirers.

Smith, who has accepted a job as curriculum director for the Lewiston, Idaho, schools, worked in vain during his three years at Spirit Lake to win voter approval of a school bond proposal for new construction.

After several attempts failed at the polls, an anonymous donor, working through a banker, gave the district $5,000 last fall. He said he would give another $5,000 if the district could keep Smith as superintendent for at least another year.

But he has quit and said the opportunity at Lewiston "presents such a challenge in a forward-looking school system that it could not be denied."

Identification tags proposed for students

A physician who cared for many of the children injured in the fire at Our Lady of Angels school last December has called for identification tags for all school children.

According to Dr. James E. Seagraves, identification of injured children is often difficult because they seldom carry wallets or other identifying objects. Dog tags similar to those worn by members of the armed services would alleviate this problem he said.

Students protest rule limiting teacher talks

A rule that acts to discourage students at the West Rocks Junior High School in Norwalk, Conn., from seeing teachers after school has been protested by a number of students, teachers and parents.

The rule decrees that a student wishing to confer with a teacher after school ends must complete his conference within five minutes or remain in school for 50 minutes, the length of the school's official detention period.

Teachers have complained that this discourages students from seeking help, since a point that might be cleared up in 10 or 15 minutes will actually hold them in school for almost an hour.

Teachers and parents have also protested a school rule that parent-teacher conferences must be set up by a guidance counselor and must be held in his presence.

The West Rocks school, under the direction of Principal Herbert Bothamley, is considered strictly academic. There are no clubs to distract students from the business of learning and boy-girl contacts while walking to and from classes are frowned upon.

The rule protests, and several recent incidents at the school, have been dismissed as a "tempest in a teapot."

Black flag haunts school litterbugs

A black flag flying over the Monterey, Calif., High School serves as a grim warning that students there have been unduly littering their campus. Under the Monterey plan, the campus is inspected every day after lunch periods by a vice principal and two students.

If they find the campus clean, there is a favorable comment in the school bulletin. If there is some litter, a note of warning appears.

When the committee finds the campus unduly littered, the black flag is run up and the school snack bar is closed for the day. The plan, devised by Principal Carl McDonald, is said to be working wonders.

Too many administrators teacher's rep says

Too many generals and not enough privates? That's the way the nation's schools are pictured by Henry L. Clarke, western regional representative of the American Federation of Teachers (AFL-CIO).

Clarke contends that there are too many administrative personnel in the nation's schools. A study conducted in California, he says, showed that only 40% of school budgets went to classroom teachers. The report showed that there was one full-time administrator to every eight teachers in elementary schools; one for every six in junior high schools, and one for every four in senior high schools.

Houston board TV blacked out, restored

A ruling that telecasts of school board meetings in Houston, Tex., were illegal, was quickly reversed by the state's legislature.

The Houston board, which has been televising its meetings over the city's educational TV station for several years, had requested a ruling as to their legality, from the state attorney general.

Attorney General Will Wilson ruled that public money could not be spent on the telecasts. The board had been paying $2.17 per minute for the telecasts, which rated among the city's favorite programs.

Immediately following his ruling, members of the legislature prepared bills authorizing the board to continue making such expenditures.

A new hitch to continued televising arose however when managers of the station revealed that the price they were charging the board was only half the cost of the operation. The station said that future telecasts would have to be aired at double the present pre-minute rate.

Big step in middle buoys salary schedule

A salary schedule, designed to attract new teachers and hold experienced personnel, has been designed by the school board of Wheeling, Ill. Key to it is a huge $800 increment after five years of teaching.

Tired of salary schedules that either discouraged young teachers ("takes too long to reach the top") or oldtimers ("that inexperienced teacher is starting at twice the salary I made in my first year"), the board decided to devise a schedule that would alleviate both complaints.

Under the Wheeling salary arrangement, beginning salaries are fairly high. Yearly increments for the first year are slightly less than those of neighboring districts. Then, at the end of the fifth year, an extra $800 is added to the paycheck. After that, yearly increments drop again to the standard level.

"This schedule has the advantage of attracting new teachers," says Board Member Robert Brower. "It promises a better salary in a comparatively short time. And it is not exceedingly costly since the young women who make up a large percentage of the faculty leave teaching before the fifth year.

"The career teacher, on the other hand, is able to receive a high salary at a time when dependents are young and mortgages high. This way we attract the young teachers who see that big jump in just a few years, and retain the career teachers who add so much to the stability of our staff."

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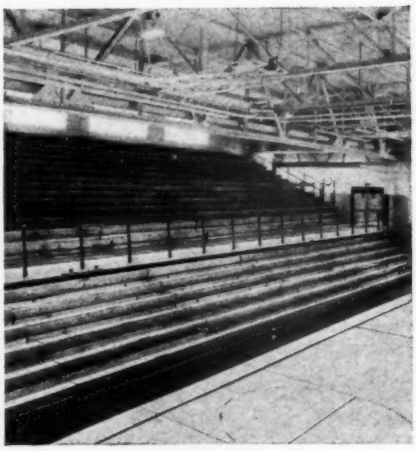

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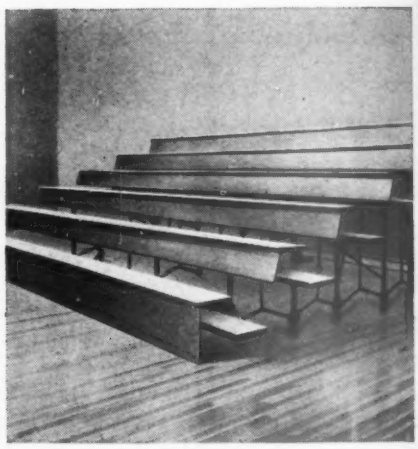

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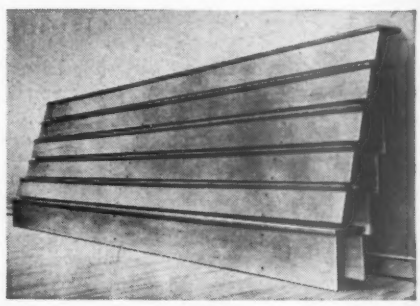

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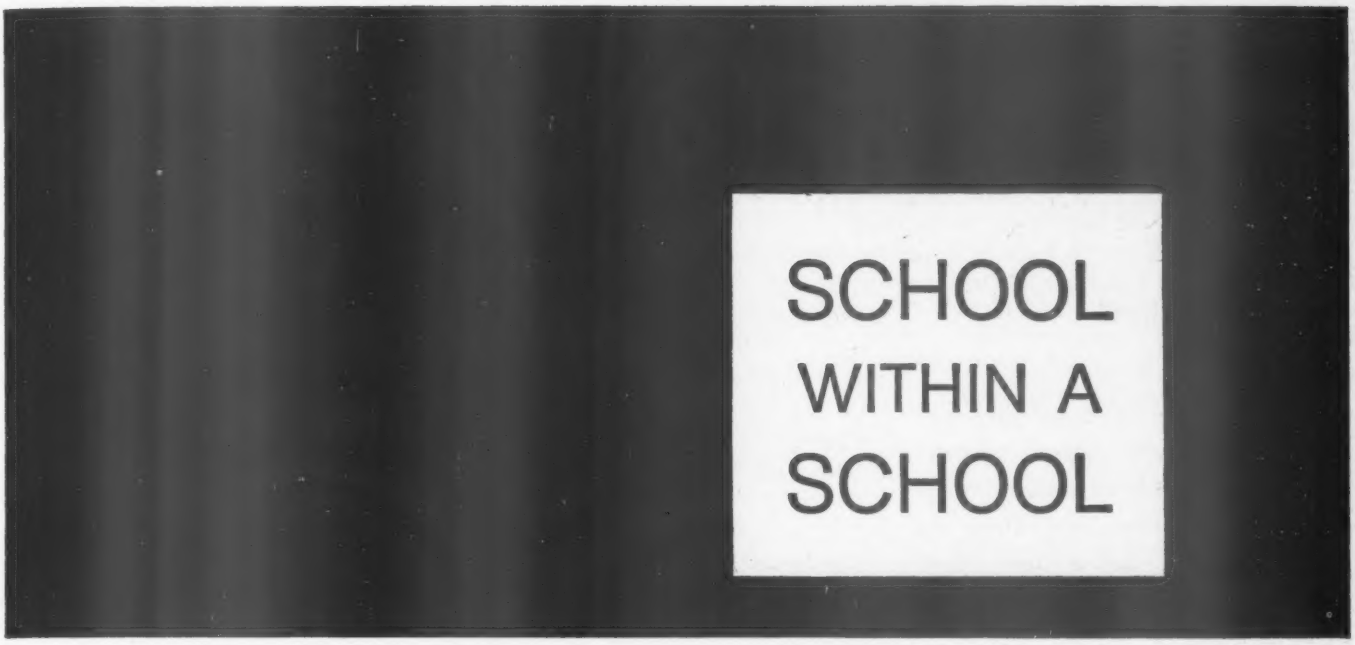


a better way to organize a high school?

As high schools increase in size, and as educational philosophy changes, the traditional organizational pattern of the school tends to become "dated." Here's a new concept that is rapidly outgrowing its experimental stage, and that promises a better educational program at lower cost.

■ ■ ■ During the last few years, an exciting new method for organizing and administering high schools has been gaining rapid acceptance. The method goes by many names, but the two titles which seem to be most definitive (and which are used interchangeably in this article) are "the little school plan" and "the school-within-a-school."

Here, in a nutshell, is how the plan works: the large high school is subdivided into two, three or four little schools, each with its own faculty. Each student is assigned to one of these units. It becomes his or her home base for a period of years. During this period, the student takes all of his required subjects with the same group of teachers and the same group of pupils. His elective courses—like physical education, shop, homemaking, etc.—as well as a few advanced academic subjects, are taken in *central facilities* from a faculty which serves all of the little schools.

So much for the broad outline. The typical four-year high school may use a variety of different plans for organizing within the basic concept. It can be divided into a group of two or more little schools which cover grades nine through 12. It can be split into units covering grades nine and 10 and grades 11 and 12. But, whatever division is used, two very fundamental advantages accrue to the pupil and the school district:

1. more individual attention is possible. The individual is less likely to become "lost" in the crowd of a large student body.

2. the virtues of a large high school—a broader curriculum, more specialized facilities, a stronger faculty—become economically possible.

There are other advantages, of course, of both an educational and administrative nature. These are covered in the interview presented below. But the key element still remains "the virtue of smallness with the economy of bigness." To one familiar with the postwar trend in busi-

ness and industry to *decentralize* operations and authority, the parallel is striking and provocative.

The Bellflower experience

In seeking a good case history to report, SCHOOL MANAGEMENT editors were exposed to districts adopting the plan in such widely dispersed cities as Roanoke, Va., Massena, N. Y. and Newton, Kan. (which is adapting the little school plan to the junior high school level). In selecting Bellflower, Calif. for special emphasis, we were motivated by two important considerations:

1. This community installed its first "school-within-a-school" two years ago in an *existing* high school structure. It is building a second high school, designed to accommodate this plan, but the administration has proven that a special building design is not essential.

2. The Bellflower High School is not tremendous. The present student body is about 2,000. In the new school, the pupil population will be less than 1,000 when it opens.

The following material is drawn from a long tape-recorded interview with Dr. W. Norman Wampler, superintendent of the Bellflower Unified School District, and Dr. John Prasch, principal of the high school.

Q Is the "school-within-a-school" idea something to consider only when a new building is planned—or is it an idea that can be adopted in an old school?

WAMPLER: We think both. We think it's possible to adapt it to any building, but there are certain obvious physical plant factors that can facilitate a school-within-a-school plan.

Q. Let's take the situation of a district that has a high school that accommodates about 1,200 pupils. Let's say the school is a conventional 15-year-old structure. Do you think it would be feasible to attempt to put the little school plan into practice?

PRASCH: Absolutely. We've done it. Many people think, because of the kind of publicity that the school-within-a-school has had, that the plan will work only with new buildings. That's not true.

Q. Did you have to make any structural changes of any magnitude in your old school when you got started?

PRASCH: We've made none. We started out with the assumption that we would make none. We didn't want to invest money in something which was frankly experimental. Now that we've had some experience there are a few changes, primarily in the arrangement of offices, we might eventually like to make.

Q Do you think there is any limit to the number of little schools that could be put within a large structure—whether it's a new building or an old one?

PRASCH: I think there would be some practical limits. One of the basic reasons for using this approach is to utilize a plant fully. For example, in a large school you may have enough enrollment in specialized subjects, such as machine-shop, to fill the shop for all of the periods in a day. If you get so large that you need a second machine shop, then perhaps any advantage to having this facility on one campus would be lost. There also might be some consideration as to the number of sub-administrators who would work well with a single head administrator. Such considerations would give some practical break-off points.

Q. You have three small schools within the one large one. In your new school are you going to use the same number?

WAMPLER: Next year we'll have just two in the new school. We are still relatively small in this plant—about 1,000 students. But, eventually, we expect to have three little schools on the one campus.

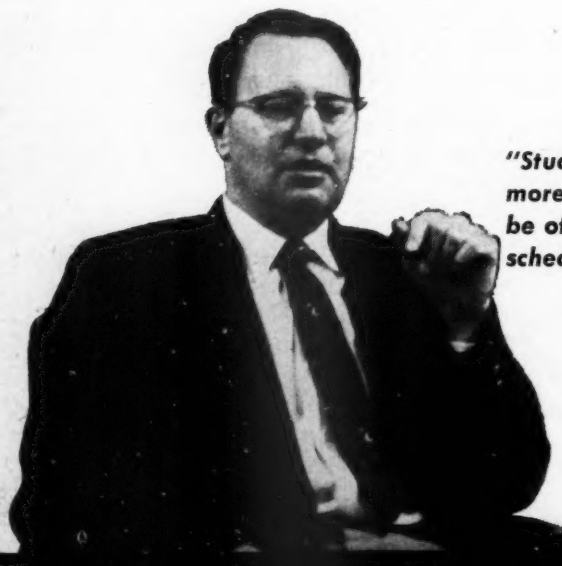
Q. From what you have learned thus far, do you think there is any optimum number of small schools within the large school?

WAMPLER: I don't know that we are equipped to answer that. At the moment, I am inclined to say that three or four ought to be a good number.

PRASCH: I believe the decision as to how many schools to have is a practical rather than a theoretical one. In our case, and this would be true of any situation, you will work within the number of people you already have.

Q. Could a district just keep adding on little schools in the interest of economy so long as the central facilities are large enough?

WAMPLER: The geographical area you are attempting to serve would control that. I think one of the



"Student scheduling is much more flexible, more electives can be offered. And there are fewer schedule conflicts."

PRASCH

many reasons you don't want to put 5,000 kids in a school is that you don't want to bus them from too large an area. Perhaps it might be more advantageous to set up a second campus three or five miles away.

Q From an administrative point of view—what is the span of control so far as the number of teachers that can be handled by one of these sub-directors? Is there an ideal number of teachers under a sub-principal?

WAMPLER: I don't know whether we are ready to give you an ideal, but we know one tremendous advantage the typical elementary school has over the typical large secondary school is the fact that the elementary school principal is working with 15 to 25 teachers and he can know them intimately. By the same token, they can know him well. He can supervise them regularly and can know what's going on. So we tend to feel that when you get up around 25, you are getting toward the maximum practical number for a sub-school staff.

PRASCH: I agree. The concept of "span of control" is persistent in industry and in the military, yet it's almost conspicuous by its absence in the organization of high schools. This doesn't make sense. I think that for the principal of the large school, and by large school I am speaking of 1,000 or 2,000 students or more, there is no other answer than some sort of decentralization in terms of handling the teachers and supervising the classroom instruction.

Q. In your operation of a single small school-within-a-school, the sub-principal has control over the teachers, but does not get involved in other administrative areas. Is that correct?

WAMPLER: We are still experimenting in several of these areas. But we believe that the little school should become a relatively independent unit in which such items as attendance, guidance and discipline are self-contained. In such areas the sub-principal can work almost as if his school were an independent unit. The sub-principal, for instance, would evaluate teaching service—then the head or coordinating principal, can really administrate. He coordinates the total program and, in our plan, takes responsibility for curriculum leadership.

Q. Doesn't giving all that authority to the sub-principal conflict with the concept that the principal should be the educational leader in the school? Haven't you delegated educational leadership to the assistant principal level?

WAMPLER: No. On paper the principal in the traditional school is the educational leader. But, because of the sheer size of things, he is usually immersed in administrative details. He can't get into the classrooms and can't facilitate the educational growth of the institution. We feel that, if he can be relieved of some of these chores, then this head principal is in a position to be an educational leader in the true sense of the word.

Q. Mr. Prasch, in your present structure, do you do classroom observation?

PRASCH: Yes I do. This particular arrangement allows me to do better classroom visitation work. Now, I have to preface this remark with some explanation of our plant. Our students are actually divided into three schools and they are responsible to a sub-administrator. So, no students are directly responsible to me. I have no counselor working with me. The teachers who handle required subjects are also divided up into three groups and are responsible to a sub-administrator. But, in our particular set-up—and we hold no brief for this—there is a group of teachers who deal strictly with elective subjects and are not assigned to a sub-school. This group is assigned to me. So, in effect, we have three student groups but we have four teacher groups. We have four administrators—the three sub-school principals and myself—each of whom has a group of teachers with whom to work. This relieves me of the necessity of visiting a lot of teachers and allows me to concentrate on the smaller number handling the electives. I visit these classes and I think I'm doing a better job because I'm not trying to cover such a large area.

Q. Do your electives include the so-called academic courses as well as shop and that sort of thing?

PRASCH: Yes. It should be added, perhaps, that the ratio of required and elective subjects in our curriculum is roughly half and half. In fact, we may be weighted a little more to "requireds" than most schools.

WAMPLER: In our new school, we are changing that a little bit. We are decentralizing the home-making course and bringing a unit into each sub-school. The sub-principal, we presume, will handle that. There is nothing sacred about the way we are doing it. We have developed it around our particular needs and we can see other ways of doing it just

"Teachers in each sub-school are directly responsible to their sub-principal. They work with him on administrative problems."
WAMPLER

HOW WAMPLER & PRASCH DESCRIBE THEIR PLAN

"The direction of both curriculum and guidance for the entire student body under a single administrative position places too large and diverse an activity in one office."

• • •

"Organization of the faculty on the single criterion of subject matter taught places too great an emphasis upon departmental structure. Often such patterns impede curriculum progress, are a divisive influence on the faculty, produce a hodge-podge of different sized sub-groups, and sometimes focus attention away from the student."

• • •

"The absence of any organization which insures a year-to-year contact for a student with a given counselor, group of teachers, or administrator, produces a series of segmented or transitory adult contacts for the student which are not necessarily best suited to his continuing development."

• • •

"Highly specialized physical facilities can be provided for selective or advanced groups when the student population is large enough to insure their use for a full daily schedule. Laboratories and shops are examples."

• • •

"Within the framework of the required courses the organization attempts to provide the student with the 'small-school' environment. The total student population is divided into three representative groups. Each sub-group has its own administrator, its own counselor, and its own group of teachers. Accordingly, teachers of required subjects are divided into three sub-groups. The student will remain in the sub-school for all four years and will get all his required courses from the same set of teachers."

• • •

"Within the elective portion of the curriculum the 'large-school' environment prevails. Students are enrolled for electives without reference to their sub-school membership. Elective class teachers are organized on a departmental basis. Instructional emphasis is in the direction of departmentalization and specialization. Student assignment to sub-groups is made in such a way as to produce groups of comparable make-up with respect to grade, sex, and ability."

• • •

"Students are assigned to classes in music, shop, business education, advanced mathematics, and advanced science without relationship to the students' sub-school affiliation. Library, cafeteria, and physical education plant are also shared in common. Athletic teams, school music organizations, student newspapers and yearbooks are not separated among the three sub-schools."

as well. On the other hand, since there is only one physics lab for the whole school, it's rather artificial to assign it to one of the three sub-schools. So Mr. Prasch supervises the person who teaches physics.

Q. How do you differentiate between required and elective courses? Is it by subject area or by the courses within a subject area?

WAMPLER: When we speak of a required course, we are talking about a course which every youngster is required to take. Electives are those which some choose and some do not. All of our students are required, for example, to take a general science course. General science teachers are, therefore, assigned to sub-schools. Students take general science within the sub-school organization. But when they take either chemistry or physics or biology—all of which are electives—they now are taking these from teachers who are not assigned to sub-schools. The students are mixed in classes with students from each of the sub-schools.

Q. Is it conceivable that a teacher would be in the position of teaching both a required subject and an elective, and thus have two masters to report to?

PRASCH: We have had that situation and we have assigned the teacher, in every case, to a sub-school. Remember, the group of teachers who teach electives is a little larger and we attempt to equalize the total groups. Incidentally, the total size of the school is a controlling factor in how often you run into this. In other words, a large school, somewhat larger than ours, might eliminate this problem.

Q. What is the ratio of pupils to teachers in each little school?

WAMPLER: In our school the gross pupil-teacher ratio this year is about 24 to one. For approximately 2,000 students we have a staff of 81 classroom teachers. There are about 670 pupils per sub-school, and the average number of teachers assigned to each sub-school is 18.

Q. How much guidance help does each of these sub-principals have?

WAMPLER: A full-time guidance

continued on page 64

WHY THE VOTERS SAID

How a "safe" district lost touch with the voters

What goes on behind the scenes when a rich and proud school district rejects a badly needed new school? Here's the story of why Edina, Minn., crushed a request for funds—and what was done to reverse the decision.

By RICHARD P. KLEEMAN

Editor's note: This is the first of two articles dealing with taxpayer resistance—what produced it and how it was finally overcome. Both reports are from districts where a defeat at the polls was "unthinkable." This article was written at School Management's request, by Richard Kleeman, education editor of the *Minneapolis Tribune*.

Next month, Frank Johnson, education editor of *Newsday* will report the inside story of Great Neck, N. Y.'s stunning defeat of its annual budget last April.

■ ■ ■ On Oct. 1, 1958, residents of Edina-Morningside, Minn., a fine residential suburb of Minneapolis—went to the polls in unprecedented numbers for a school bond election and said "no," 2,504 to 1,730, to a $4,650,000 bond issue, most of it for a new senior high school.

It was the first time in 12 years that the well-to-do, two-village school district had turned down a school finance proposal.

Eight months later, on May 19, 1959, Edina-Morningside voters had another school bond issue before them: this time for $4 million ($2.8 million for expanding the existing senior high school and $1.2 million for a new elementary). This one carried, 2,346 to 647.

The story of the 8½ months between the two votes is the story of a community transformed from suspicious and misinformed to one reassured and crammed with facts; of a school board and administration persuaded to re-examine a once-rejected plan and, above all, the story of a citizen organization, insistent on maintaining its independence of school board and administration, that worked intensively and dug deep into community school needs and how best to meet them.

Understanding what happened in Edina (as it will hereafter be called, Morningside being a smaller appendage of the school district and generally similar to neighboring Edina) calls for understanding something about the suburb itself.

No statistics can adequately portray the Edina picture of curving, tree-shaded avenues; of small lakes; of homes ranging mainly from upper-middle-class to upper-upper; of a citizenry counting among its members many of the upper-echelon executives of Minneapolis area enterprises; and of a statewide reputation for excellence in public education, among other things. Yet a figure or two may help delineate more sharply the portrait of this community of 25,000, located just southwest of Minneapolis.

In the 1950 census, for instance, the median family income for the state of Minnesota was $2,683. For Edina, it was $5,354.

A startling 86% of Edina high school graduates enter college.

In property wealth for each public school student in average daily attendance, according to 1955 valuations, the statewide median was $2,309. Edina's was $2,636—well above the median, as might be expected, but significant also for not being astronomically high. For here lies one of Edina's problems: the

EDINA-MORNINGSIDE BOND ELECTION HISTORY

Year	Amount	Votes Yes	Votes No	Passed/Defeated	Explanation
1946	$ 150,000	1818	1091	Passed	Remodeling.
1946	1,200,000	979	2055	Defeated	Residents wanted proposed senior high school site reserved for country club.
1947	1,250,000	1012	188	Passed	Senior high school changed to present site.
1950	75,000	843	87	Passed	Athletic field.
1951	1,528,000	1144	421	Passed	New elementary and site, elementary addition, senior high additions.
1954	2,475,000	1331	440	Passed	Junior high school construction, elementary addition, three sites.
1956	1,400,000	1805	203	Passed	New elementary, three sites.
1958 (Jan.)	550,000	900	156	Passed	New elementary.
1958 (Oct.)	4,650,000	1730	2504	Defeated	New senior high school, convert existing senior high school to junior high school.
1959 (May)	4,000,000	2346	647	Passed	Senior high school addition ($2,800,000), new elementary ($1,200,000).

property tax burden rests squarely on home-owners and to only a negligible extent on commercial or industrial property (less than 2% of Edina property is non-residential).

Edina's public school population has sky-rocketed—from 1,162 in 1946 to 2,143 in 1950 (the first year Edina had a full high school complement of its own) to 5,906 in September 1958. By 1970 Edina public schools will have almost 11,000 or more than 12,000 students—depending on whose estimate you accept.

To house its nearly 6,000 youngsters, the school district now operates five elementary buildings (one in Morningside), one new junior high (capacity 1,150; occupancy, 1,340) and one senior high (capacity 1,100; occupancy, 1,130). The junior and senior highs and one of the elementaries are located on a single 54-acre campus site, with adjoining athletic and parking areas.

Plans for the future

In April 1958, Milton H. Kuhlman, Edina school superintendent since 1950, outlined to the school board three alternative plans to meet the anticipated high school student influx:

1. Build a new combination junior-senior high school in the southwest portion of the district (present secondary schools are in the northeastern part).

2. Construct a new junior high in the west half, to be followed shortly by either an addition to the present senior high or construction of a second senior high adjoining the proposed new junior high.

3. Convert the existing senior high to a second junior high (which thus would adjoin the present junior high on the campus site) and construct a new senior high, large enough to handle all anticipated senior high enrollment, in the district's west end.

On Kuhlman's recommendation the first plan was rejected out-of-hand. Plans two and three were weighed carefully and—upon the board's being informed by the architect who designed the senior high that it could not be expanded to the extent desired—it was announced in June 1958 that a new senior high school, with initial capacity of 1,800 but capable of expansion to 2,700, would be built in western Edina. The present senior high was to be converted to a junior high.

Late start

Although adoption of this plan was announced in June, it was not until September that more detailed plans were announced and not until September 16 that the amount of the bond issue to be voted upon was disclosed.—The vote was scheduled for October 1. The amount asked was a whopping $4,650,000, of which $180,000 was for converting the senior high to a junior high, and most of the remainder for the new senior high, equipment, site improvements and architects' fees.

"The issue was presented too quickly to the voters," Superintendent Kuhlman quickly concedes in retrospect. "We wanted to open the high school in the fall of 1960, and the architect told us we must have the bond election no later than October 1.

"The leeway given us was during the summer months, so the only time we had to work with was in September.

"When it comes to trying to open school and carry on a bond campaign at the same time, we can tell anyone from experience: 'Don't try it.' We learned a lot from that.

"But it's not fair to blame only the architect: we all would have to share the blame. Probably we worked longer than we should on preliminary plans, and all of us probably were not enough aware of how many months each process takes."

Once the architect's ultimatum was received, however, Kuhlman says he and the board faced a choice between evils: delay the vote and be forced into double-sessions in 1960, with school patrons then de-

manding why they couldn't have voted in time to avoid this, or chance failure on a quickie vote.

"We gave it the old college try," Kuhlman says wryly.

But the college try didn't get the high school built—and George Posselt, lumber firm executive and Edina school board chairman, gives his reasons why:

"The vote reflected a national revolt against higher taxes, accentuated by the 1958 spring recession.

"We didn't allow sufficient time between the announcement of the bond election and the actual voting date to let citizens become fully informed—all this plus last-minute, unwarranted criticism by persons actually ill-advised created doubts in the public mind."

Posselt was referring primarily to two incidents: an article in the suburban weekly newspaper that hung a "luxury" tag on the proposed school, and a charge by a Minneapolis architect and Edina resident, aired both in a public meeting and in the suburban and metropolitan press, that the new school, at an estimated cost of $17 per square foot, would be "gold-plated from stem to stern."

In defense of the original plan Kuhlman suggests that the suburban newspaper article was not entirely factual in enumerating features of the new school and that the $17 cost estimate was an "outside" figure arbitrarily used to allow for any possible contingency.

"Had the issue gone through," Kuhlman declares, "bids at that time were so competitive that they were running 15% to 20% below estimates. The school would have cost about $13.60 per square foot and would have been one of the lowest-price schools built in a long time. There was just too much safety in the $17 estimate."

(The critic-architect's public statements about a "gold-plated" school resulted, after the election, in the filing of formal charges of unprofessional behavior against him by the school project architect. The charges were filed through two channels: the state architect-licensing agency, which subsequently dismissed them, and the American Institute of Architects, which still has them under consideration.)

That there may have been a more fundamental reason for the bond issue's defeat has since been suggested by Bower Hawthorne, Minneapolis newspaper executive who subsequently became chairman of the new Edina-Morningside Citizens Advisory Committee on Education. An Edina resident 20 years —and village councilman for 10— Hawthorne thinks the school board and administration might have become a bit smug.

"It's a point of democracy and a problem of suburban communities," Hawthorne says. "The public tends to pay too little attention to public affairs as long as things run reasonably well. At many of the Edina school board meetings, for example, no one from the public shows up.

"As a result the board tends to lose touch with the community, and to feel anything it does is all right and will be acceptable."

Hawthorne acknowledges also the factors cited by Posselt and Kuhlman—the lack of public understanding of the proposed new school ("it was a new concept and took the community by surprise") and the "bad reporting" of the suburban newspaper article. But Hawthorne also claims the school board did not have detailed plans for the new school at the time it was asking the community to vote bonds for it.

Whatever the reasons for the board's humiliating defeat, it had recovered equilibrium sufficiently by mid-October to convene some 90 Edina and Morningside residents and ask them to constitute a citizen's committee with Hawthorne as general chairman.

A committee is born

There is considerable evidence to indicate that the board expected this body to serve as a promotion committee to sell the community on the rejected plan. An early-December vote on the same question was known to figure in the board's thinking, the hope being that the new school could still be ready for use in September 1960.

From the outset, however, Hawthorne served notice that he would not operate on such a basis. The first actions of the citizens' committee were to declare complete independence of the board and administration, to establish itself as a permanent school study organization rather than a temporary promotion group, and to *elect* Hawthorne to the chairmanship to which the board had *appointed* him.

Next Hawthorne set up a steering committee—charged with creating subcommittees—and an executive committee consisting of officers and subcommittee chairmen. The community was issued a broadside invitation to join forces with the citizens' committee and Hawthorne wound up with a total membership

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HOW BAD IS TAXPAYER RESISTANCE?

It depends on "whose bull is gored." "It's not too bad," according to *Better Schools*, official publication of the National Citizens Council for Better Schools. The paper reports that school bond authorizations were at a peak point in April—with $171 million approved, or 83.6% of the appropriations presented to voters. Dollar totals are double those of April, 1958, when only 74.6% were okayed at the polls.

Says Editor Arnold Bloom, "In the first four months of this year, there were 145 fewer bond issues submitted to the electorate than last year. Of these, 102 less have been approved and 43 less have been defeated. By percentage, however, voters approved 79.9% of the individual issues submitted to them for a 2.2% increase over last year's figures. The figures bear out a contention that *Better Schools* has been stressing for the last year-and-a-half—that more and bigger school bond issues are receiving public support. That conclusion was reached despite widespread attention being drawn to so-called voter resistance to bond issues."

To that, School Management can only add, "Looking at it the other way, it's still a sad situation when 20% of American communities find reason not to build when we need 140,000 new classrooms to handle pupils in excess of normal capacity and to replace unsatisfactory facilities."

School building costs

CAN BE CUT

There is a great potential for school building economy—when you know what to look for. Here's a digest of an important study which can help your district control building costs.

■ ■ ■ In March, 1958, the New York State Department of Education commissioned Rensselaer Polytechnic Institute School of Architecture to conduct a study of schoolhouse construction.

The investigators, aware of the overwhelming amount of material already in print on the subject of building economy, decided—at the outset—to avoid generalities and stick to specific comparisons whenever possible. This meant a complete focus on physical factors, without regard to the educational program, the teaching philosophy or even the building site. To further narrow the field, they singled out secondary school costs as their area for research "since this is where the next student bulge and strongest need for additional space is sure to occur."

First copies of the completed study * were released in late 1958. Shortly thereafter a SCHOOL MANAGEMENT editor went to RPI to interview Dean Harold D. Hauf, of the school of architecture, and Alan C. Green, one of the investigators. The following report is based on that interview and the text of the study itself.

What is schoolhouse economy?

Economy, the investigators pointed out, should not be confused with "cheapness." In building a structure as permanent as a school, economy is synonymous with "maximum" value in *both* long-term and initial costs. They point out, "Too few taxpayers realize that if some benevolent 'angel' were to give them their school buildings at no cost whatever, their tax rate would be, on the average, only 12% lower. The annual cost of maintenance and operation of their building is almost as much as they are paying annually (in the form of debt-service for the retirement of building bonds) toward the cost of the building itself."

Though the study does not deal with the appearance of a school, Dean Hauf pointed out, "People think because a school looks nice it's expensive. A thing doesn't have to look bad to be cheap. Good design doesn't necessarily cost more."

Looking for economy

In their summary the RPI investigators broke cost factors into three categories: building design, state regulations and procedures. Of these, only state regulations (which were found to have little bearing on economy possibilities) are of a purely local nature. Economies found in design and procedures are basically applicable anywhere.

*POTENTIAL ECONOMIES IN SCHOOL BUILDING CONSTRUCTION. *A research report sponsored by The State Education Department, The University of the State of New York, Albany, 1958; prepared by School of Architecture, Rensselaer Polytechnic Institute, Troy, N. Y., Harold D. Hauf, Dean; Wayne F. Koppes, Principal Investigator; Alan C. Green, Research Assistant.*

In the area of building design three factors emerged to the investigators as the most likely for effecting appreciable economies:

1. Wider use of modular planning, repetitive units and off-site fabrication.

2. Recognition of the importance of maintenance costs and consistent efforts to reduce them. (Says Hauf, "We would have liked to have done more in this area. Once we got into it, we began to realize how huge a factor it is.")

3. Objective research as to real needs in schools, aimed at reducing arbitrary but unessential requirements for structure and equipment. (There's no point in building a heating plant for 50 degrees below zero weather. You're better off closing the schools if it's like that.")

In the area of procedures, two appeared to be the most important. They are:

1. The method chosen for financing (*see "Are you getting the best rate on your bonds?" SM, Apr. '59*).

2. The competency of architectural services in facilitating accurate bids and expediting the work.

The findings of the RPI investigators can be used by anyone anywhere who is looking for true school economy. In particular, however, they emphasize two critical points: First, the architect is the key figure in the whole problem. Significant economies depend on his skill and follow-through. Second, local school authorities are guilty of raising costs (often unknowingly) by making decisions based on opinion instead of objective data.

A summary of the detailed report is presented below.

☛ SINGLE-STORY VS. MULTI-STORY

Prominent among the characteristics of post-war schools has been the growing predominance of single-storied structures occupying a large ground area. The economies of this type of planning have often been argued in contrast to that of multi-story schemes.

The principal advantages claimed for each may be summarized as follows.

For the single story:

1. Elimination of expensive and hazardous stairways.

2. More flexibility in layout, permitting space requirements and site conditions to be met with a minimum of waste.

3. Lighter structural design loads, resulting in reduced foundation requirements, a consideration of particular importance in areas of poor sub-soil conditions.

4. Possibility of using cheaper non-fireproof construction that would be prohibited in a multi-story design.

5. Generally reduced cost of maintenance of window areas and exterior walls by eliminating the need for scaffolding and extra risk insurance for workmen.

For the multi-story:

1. Smaller square footage of ground coverage resulting in reduced lineal footage of foundations; a consideration if site is rolling or otherwise "difficult." (The obvious problem of site size will not usually be a factor, as sufficient acreage should be purchased to permit either single or multi-story construction.)

2. Reduced roof area affecting heat loss and maintenance costs.

3. Lower plumbing costs, with more compact toilet layouts.

4. Shorter runs for piping, ductwork and conduit.

5. Reduced heating costs due to lower overall heat loss.

There appears to be no rational basis for any general rule as to the comparative economy of either approach. It was the expressed opinion of architects and engineers who have conducted such studies that, as a general rule, the use of multi-story buildings should be considered as a probable economy when the program calls for 30 or more classrooms.

Conclusion: *No general rule can be stated as to the relative economy of one-story and multi-story buildings, except that for large schools the latter may be expected to offer advantages. In general, each situation must be analyzed on the basis of specific conditions and requirements.*

☛ CAMPUS PLAN VS. COMPACT PLAN

The campus plan philosophy, also known as extended or unit plan, for school plants must be compared with older and more compact plans. Each has its advantages.

For the campus plan:

1. Usually very significant savings in the cost of site development and grading, except in cases of perfectly flat, open locations.

2. Reduction of enclosed corridor space through use of open, covered walks.

3. Provision for economical future expansion without disrupting the use of the existing buildings.

4. Savings on fire insurance rates (effects of fire are easily isolated and confined to small sections, with minimum effect on the overall program).

5. Feasibility of using small individual heating units.

For the compact plan:

1. Reduced mechanical costs due

to centralized equipment, reduction of runs and less duplication of equipment.

2. Much less exterior wall perimeter.

3. Lower maintenance costs.

Conclusion: *Neither the campus plan nor the compact plan offers consistent advantages of comparative economy. Each project must be considered individually in light of the specific problems involved.*

THE USE OF REPETITIVE UNITS

It appears that the wider use of repetitive units (modular planning) is hampered because of lack of experience and insufficient knowledge of the concept on the part of architects and engineers. The use of repetitive bay dimensions, beam lengths, column spacings, window locations, mechanical and electrical service units, and similar elements not only simplifies the material fabricating problem but also facilitates the construction operation at the site.

Conclusion: *There is no doubt that modular construction is one of the most fruitful paths for future development of economies in school building design and construction. Ultimately it probably will offer more promise of economy than any other currently known technological concept.*

THE SPACE MODULE CONCEPT

A most interesting and effective development of modular design is the basic space module concept. This principle embraces more than the application of modular components, although their use is an essential part of the concept. The basic space module is not a building unit, but is a "block of space" which is used repeatedly throughout the plant, thus multiplying the total of repetitive elements. All environmental control factors are built into the structural shell. The interior space is left free for division in any way desired. Thus the concept combines flexibility of educational space with a maximum use of repetitive components. The concept permits wide variation in materials, framing, roof shapes and open or enclosed corridor schemes.

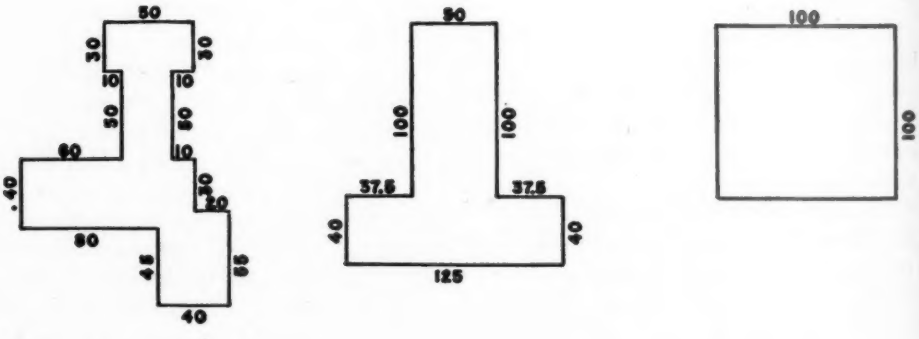
Conclusion: *No precise evaluation factor can be assigned to the general use of the basic space module principle but schools embodying this concept have been built at costs substantially lower than those of conventional design. The extent of savings will vary with the skill of the planner but may amount to as much as 10% of the total construction costs.*

NATURAL VS. ARTIFICIAL LIGHTING

Recently, more attention has been placed on the physical needs of the student which must be provided by the environment of the classroom. One area of particular concern is that of adequate and beneficial lighting; the older school buildings were extremely deficient in this respect. For many years this concern has been reflected in a variety of all-out efforts to utilize natural daylight. These innovations have often resulted in increased construction costs due to the additional expense of louvers, overhangs, blinds, shades and other devices for controlling the light once it is introduced.

With current improved methods

HOW SHAPE AFFECTS COST



	A	B	C
FLOOR AREA	10,000 sq. ft.	10,000 sq. ft.	10,000 sq. ft.
LENGTH EXTERIOR WALL	610 lineal ft.	530 lineal ft.	400 lineal ft.
COST SAVINGS AT $100/FOOT	0	$8,000	$21,000

of artificial illumination, such techniques should be subject to serious questioning on the ground of economy and many architects are of the opinion that critical attention should be paid to the costs involved.

The use of large glass areas in the outside wall of classrooms, as a dependable primary light source, is generally admitted to be a dubious practice for several reasons:

1. In most areas of the nation the sky is overcast during a large share of the time schools are in use.

2. Once large window areas are introduced, the devices usually required for sun control involve additional cost.

3. Regardless of the amount of natural light provided in a classroom, artificial lighting is still in constant use. The initial cost of glazed areas, per square foot, is nearly always more than that of blank wall areas. The proportionate costs vary widely, of course, depending upon what types of windows and walls are compared, but in an average case it may be assumed that the difference is about $1.70 per square foot. Variations in the amount of glass area used in a typical exterior classroom wall can affect the initial building cost of exterior classroom wall by as much as 15%.

It may be assumed further that the entire cost of exterior walls averages 10% of the total building costs and that one third of the building's exterior walls are in classrooms. It follows then, that savings amounting to one half of 1% of the total building cost may be accomplished by significant reduction of glass areas of classrooms. Maintenance costs of glass areas are an important consideration. There is also the cost of maintenance of the required venetian blinds, shades and other control features.

Finally, the heat loss through glass areas is significant in analyzing the long-range costs of large window walls. There is no doubt that economies in heating plant, as well as fuel, generally favor reduced glass areas, in spite of the fact that heat gain through glass areas offers compensating advantages during some daylight hours.

There are valid (though perhaps not economic) arguments, however, on the other side of the question and these certainly cannot be overlooked. Among these are the psychological necessity for windows, and the need for relief from the monotony of continuous controlled illumination, however ideal it may be. These are values difficult to express in monetary terms.

Conclusion: *Definite economies should result from a reduction in glazed wall areas in classrooms. In terms of total building costs, however, such savings are probably small; perhaps from .5% to 5% both in initial and maintenance costs.*

PERIMETER OF EXTERIOR WALLS

In economical school planning it has become a maxim of good design to keep the length of perimeter walls to a minimum, within the limitations of functional requirements. This principle is not offered, therefore, as a new lead to potential savings, but is discussed here because its importance may deserve re-emphasis.

Conclusion: *The economy value of minimum exterior wall lengths is undebatable. The extent of savings to be realized varies with each case.*

MATERIALS AND METHODS

Some of the potential economies that might be realized by the use of various methods and materials in constructing school buildings are analyzed here. Economies are not necessarily cumulative but in many cases alternate. Although this area is the one in which it is easiest to estimate percentage economies, it is not necessarily the area in which the largest economies can be realized.

EXTERIOR WALLS

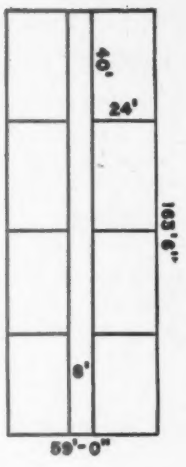
Relative costs of exterior wall construction vary widely. The architects interviewed seemed to feel that metal curtain walls and conventional masonry walls are fast approaching a standoff in initial cost. It appears that there is no conclusive evidence pointing to universal cost advantages for either, although probably the conventional masonry constructions are still usually somewhat cheaper. However:

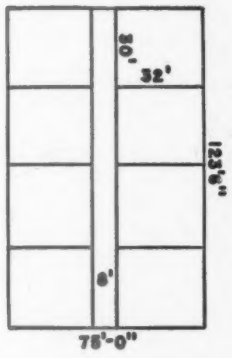
continued on page 71

Square feet of classroom area: 7,680

Square feet of corridor: 1,292*

Square feet of exterior wall: 4,450





Square feet of classroom area:	7,680
Square feet of corridor area:	972*
Square feet of exterior wall†:	3,970

**Inside walls are 6" thick*
†Walls assumed to be 10' high

By building less elongated classrooms, almost 500 square feet of exterior wall is saved and the corridor space is cut.

How to have a language lab . . .

with-out losing a classroom

If your district wants a language lab but can't afford to sacrifice a classroom, here's the answer to your problem.

"Buenos dias *estudiantes. Preparamos nuestra clase para su lección Español." With these simple directions Teacher Carlos Rivera starts the process which transforms this conventional classroom into a language lab.*

Students move *desks and tables. Appointed monitors wheel console and cabinet containing earphones to center of circle formed by desks. Students' earphones are hooked-up to portable jacks.*

Ready to go, *classroom has been transformed in just three minutes. It can be remade into a standard class in the same amount of time. Equipment is easily stored, but can be used by other classes.*

■ ■ ■ Your school can have a complete language laboratory without giving up a standard classroom. And you can do it at a price that most districts can meet. Such an installation is successfully in operation in the Bloomfield, N.M., high school.

Key to the program: Portable equipment, individual earphones and volume controls and furniture that can be moved easily.

"We wanted a language lab because we knew we had to keep up with the times," says Superintendent E. L. Thomas. "You just don't teach the same way you did 20 years ago. The teachers and the equipment have to be up-to-date.

"But, wanting and being able to have a lab are two different things. We faced two obstacles. First, we couldn't afford an elaborate set-up. Second, we didn't have an extra room that we could put aside to be used solely as a language lab. Any installation we obtained was going to have to be used in a conventional classroom.

"Now we have accomplished all our purposes. We have a complete 33-student audio-passive and 14-place audio-active laboratory at a price we could afford. And it is housed in a classroom that can be, and is being, used for other purposes.

"As a matter of fact, our laboratory really isn't housed in any one room. We do use the equipment in a particular one, but we could move it to any room in the building."

How it's done

There are two separate sections in Bloomfield's language lab. One, the more permanent, is made up of audio-active booths set up on tables along one side of the room. The tables are 30 by 60 inches each and there are two booths on each. "Walls" are affixed to each end of the table with clamps. Although these sound booths could be moved intact, by lifting the tables, or easily dismantled, as a matter of convenience, they are left standing. Since they project only 30 inches into the classroom, this causes no problems and teachers of other subjects—remedial reading, speech, etc.—are finding that they, too, can make use of this facility.

The audio-passive section is the one that allows the greatest flexibility. It is based on the use of existing furniture that can be grouped together to form a central listening laboratory. (In this case Brunswick-Balke trapezoidal tables are being utilized.)

The room being used for the language lab is normally a social science and home room. When it is being used for this purpose it looks like a conventional classroom, except for the audio-active booths on one wall (*see pictures at left and diagram on next page).*

When a language period is scheduled, the job of transforming the area into a laboratory takes just three minutes and is done entirely by students. Each is assigned a chair and two students are assigned to each trapezoidal table.

When they come into the room, one of each pair of students removes the chairs to the perimeter of the room, while the other slides the table into place (*see pictures*). Assigned student monitors move all unnecessary furniture to the back of the room.

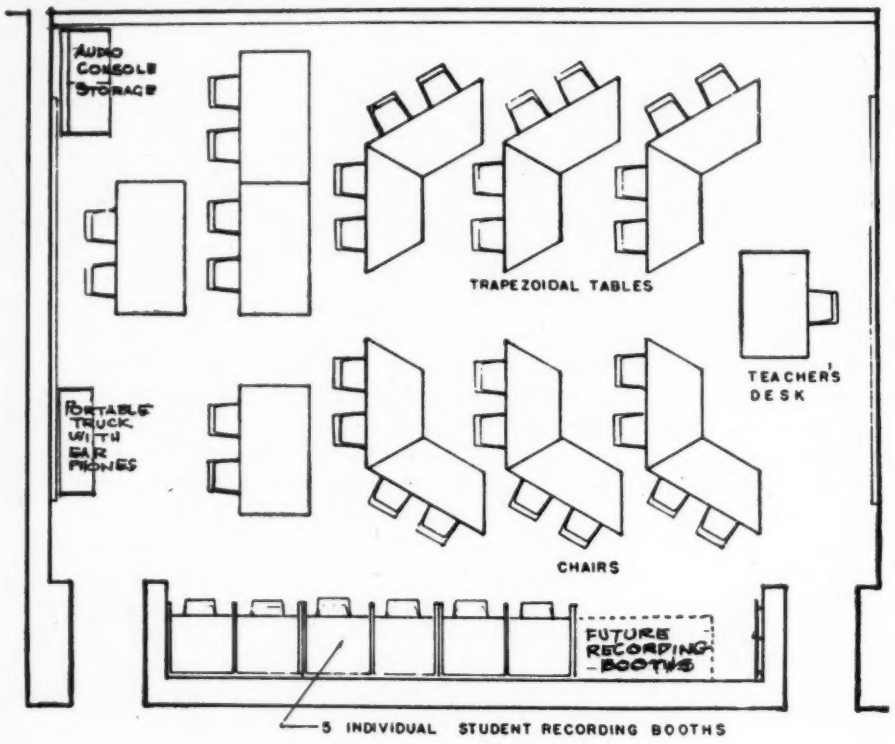
Two other monitors have the job of bringing the audio console, which is housed in a movable cabinet, and a portable accessory truck to the center of the ring being formed by the tables.

One of the monitors distributes, from the accessory truck, plastic trays containing six headsets and volume controls, to each six students in the circle. The other monitor plugs the console into the nearest handy AC outlet and plugs one outlet jack into each of the plastic trays. This accomplished, the lab is ready for use and the only step left to be taken is for the teacher to select a tape or record and insert it into the console.

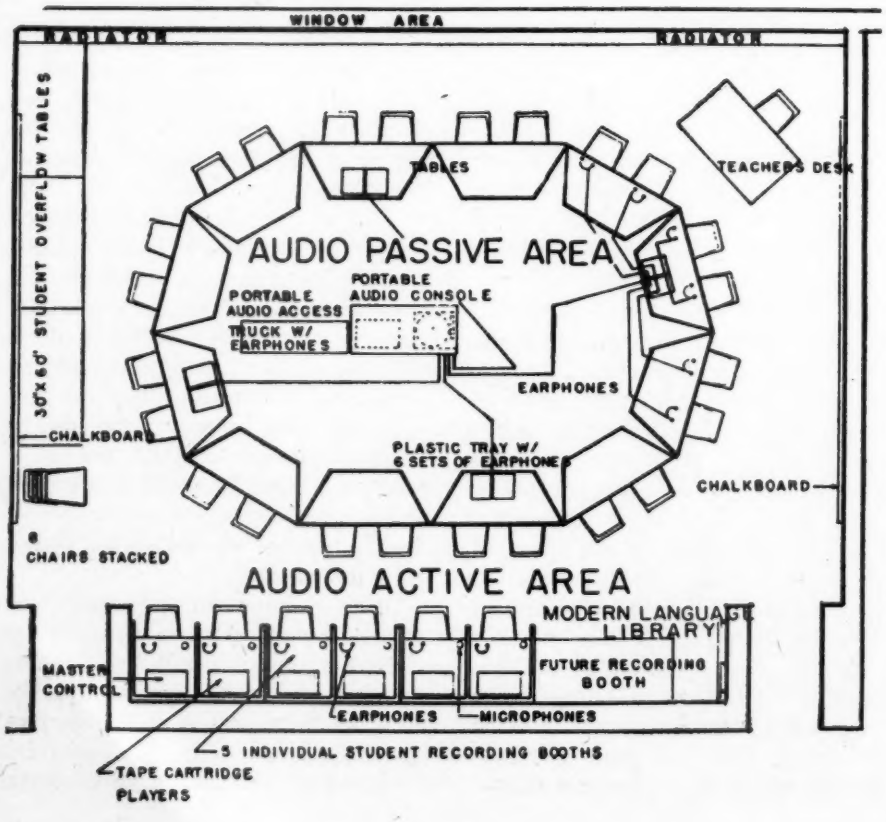
With a minimum of experience, the Bloomfield students were setting their lab up in just three minutes. It takes about the same amount of time to break it up at the end of the period.

Standard records of any speed,

CONVENTIONAL CLASSROOM



LANGUAGE LABORATORY



spool type tapes and cartridge tapes can all be used on the equipment supplied. There was no special wiring needed and the complete laboratory can be moved from room to room with no difficulty. The only limitations found in Bloomfield are those imposed by the size of the rooms. "We are using a 24 by 30 foot room," reports Superintendent Thomas. "This we consider minimum size. If the room were larger we could have as many as 48 listening posts with the equipment we now possess."

The total cost of the whole Bloomfield lab: Less than $5,000.

Side benefits

An unexpected side benefit may accrue to the school because of its unique laboratory-classroom set-up. Teachers of other subjects have begun to find ways to use the equipment. Drama, speech and English students have already made use of the equipment.

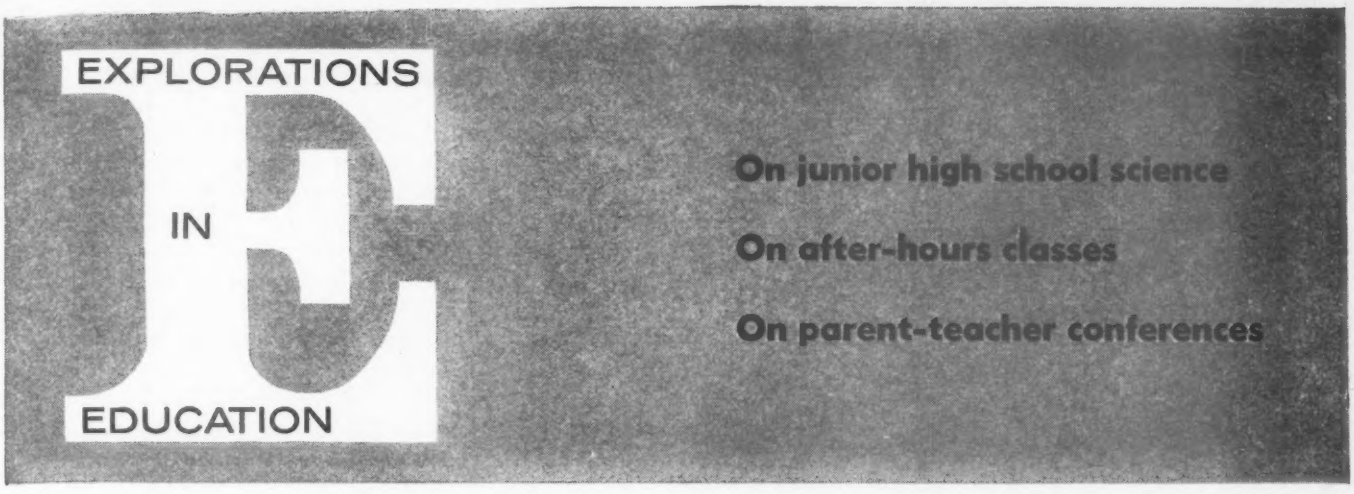
"As many as 300 of our 375 students will be assigned to the room housing the laboratory next year," says Thomas. "About 75 will be taking a foreign language—Spanish. But I think a much greater number may get to use the equipment."

End

For more information on this language lab, circle number 902 on the Reader Service Card.

When room is being used for conventional teaching, *(see chart above, left)* all students face teacher's desk from seats at tables. Audio-active booths along one wall are unobtrusive and do not in any way limit use of room. Portable truck holding earphones and jacks and the audio console are stored at the back of room.

As a language lab *(left, below)* tables are moved into large circle forming audio-passive area. Console has been moved to center of circle along with the portable truck holding earphones. These are distributed to students seated around outside.



The following case histories were submitted by readers in districts where schools are better utilizing staff, space or time. They are presented as part of a joint project with the Teacher Education Committee of the Massachusetts Association of School Committees.

SCIENCE COURSE DESIGNED TO BRIDGE TWO-YEAR GAP

AN EXPERIMENTAL JUNIOR high school science course, designed to bridge the three-semester gap between science instruction in the elementary schools and the first formal science classes presented in junior high, is being conducted at six Los Angeles junior high schools.

The course is an elective for eighth-grade pupils and in its first year attracted about 25% of the eligible students in each school.

"Besides shortening the gap in science instruction, we are trying to capitalize on increased interest in science due to space research," says Teacher Chester Harris, who heads the course in the Burroughs Junior High School. "We want to provide students with an opportunity to study some areas of science which have, of necessity, been omitted in the already crowded courses of study."

The special science class meets five days a week for one period. Major emphasis is put on student participation through oral reports, demonstrations of experiments and use of basic laboratory equipment.

The course is not designed to overlap future or past science teaching but to enrich other work in this field. It has been divided into five units, each concerned with practical elements of science. The five units are:

- The world we live in, including air, the water cycle, building soil and the relationship of plant and animal survival.
- Tools of science and how to use them, including measuring devices, the metric system and laboratory equipment.
- The simple experiments that made great discoveries, including the tools of great scientists, the methods of these men, their accomplishments and modern applications of their discoveries.
- From the sled to space, including wheels and horse power, rails and steam power, ships and sails and wings and space.
- From the tom tom to TV, including speech and tom toms, telegraph and telephone and wireless and TV.

"All students," points out Principal Richard W. Jarrett of Burroughs, "must take one year of science in junior high. A smaller percentage in the ninth grade take a second semester as an elective. This new course, also an elective, adds a different kind of exposure to science for the student especially interested in this direction."

Reported by Chester W. Harris, science teacher, Burroughs Junior High School, Los Angeles.

QUICKY PARENT CONFERENCES AID COMMUNITY RELATIONS

TWENTY-MINUTE PARENT-TEACHER conferences twice a year have greatly improved school-community relations in Holt, Mich., according to Principal Robert E. Schiefer of the Holt Senior High School.

The conferences, which started nine years ago, are scheduled in the fall and spring, at the end of the first and third marking periods. Classes are dismissed for two consecutive afternoons and teachers assemble in the gymnasium, seated in tablet arm chairs. Next to each chair is a folding chair for the use of parents.

There is usually about an 80% attendance at these conferences which supplement, rather than replace, regular report cards. For parents who cannot make either of the afternoon sessions, an evening period is scheduled the next week.

Parents are handed a check list report when they enter the gymnasium, then proceed to see any teacher they wish. Each conference lasts about 20 minutes. If a teacher wants particularly to see a parent, that is noted on the report handed to the parent.

The teachers discuss all topics with parents, but they try to confine their remarks generally to the student and his relationship to the teacher and the class. Privacy is no problem since there is a steady hum in the

room and parents are usually too engrossed in their own conversation to be distracted by another.

"The parents, generally speaking, are sold on the system," says Schiefer. "They think it eliminates misunderstandings, helps them know the teachers and gives them an opportunity to tell the teachers things they should know about each child."

As for the teachers, "they would not give up this phase of our program without a struggle," Schiefer reports.

Reported by Robert E. Schiefer, principal, Holt Senior High School, Holt, Mich.

AFTER-HOURS DEBATES SPARK SIXTH-GRADERS

SOME SIXTH-GRADE STUDENTS in Wickliffe, Ohio, think it's a privilege to stay after school, at least one afternoon a week. These are the members of a special after-hours debating class designed for students who have completed the 12th grade materials the school uses for developmental reading.

Students who have reached this plateau are invited to spend an extra afternoon in school each week, taking part in the special debating sessions.

The class is led, but not directed, by Holmes Bowden, a sixth grade teacher. Students sit around a table and discuss subjects ranging from integration to life on the moon. All topics are chosen by the participants.

Research is done in magazines, newspapers, books and on field trips. "They don't try to solve any of the problems they discuss," says Bowden. "But they pick a lot of them dry."

Students have presented debates before classmates, other classes and the PTA. There has been a noticeable increase in reading interest among all the school's students, most of whom are hoping to be asked to spend an extra few hours in school.

Reported by Principal Nora C. Stoneman and Superintendent G. H. Michel, Wickliffe, Ohio.

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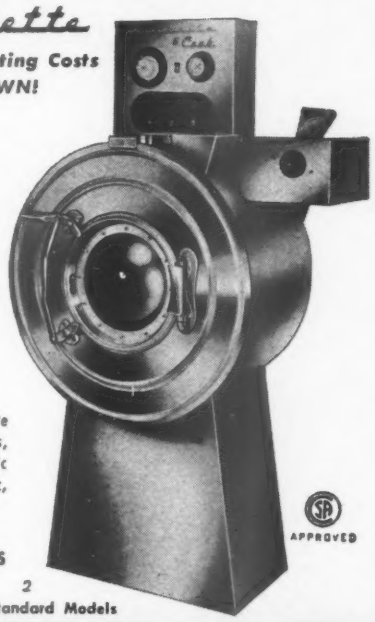

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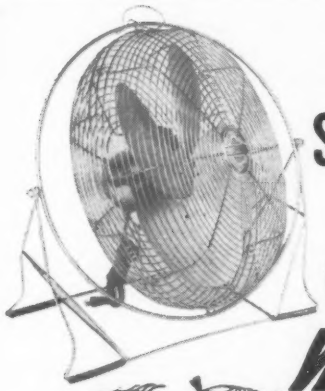

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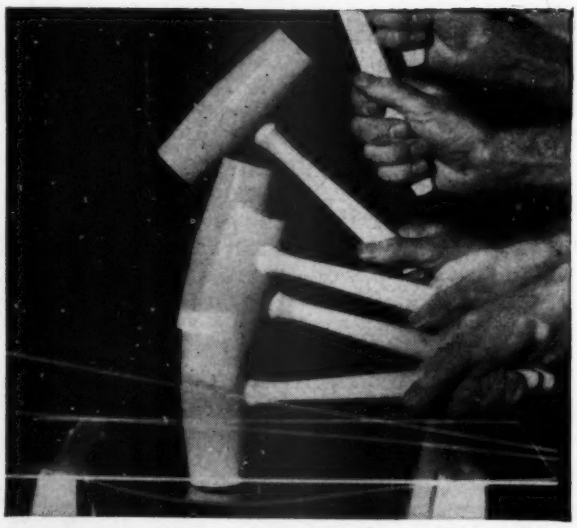

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How to simplify accounting for debt service payments

Here's how one district has turned over to a bank the time-consuming job of accounting for canceled debt obligations.

By ROBERT J. PERSON
Treasurer, Huntington, N. Y.

■ ■ ■ A new service offered by the Bankers Trust Co. of New York is saving the officers and employees of Huntington, N. Y., Union Free School District No. 1 many hours of tedious work each year. This is an accounting and cremation service for bonds and coupons issued by school districts.

For many years it has been possible to have capital debt obligations paid by responsible banking institutions. In addition to this familiar type of debt service, Bankers Trust will now retain and dispose of canceled debt obligations, thus performing a complete accounting service for school fiscal officers.

Our school district has outstanding about $2.5 million of bonded indebtedness in four issues. While this is not a large amount, it does involve handling close to 5,100 separate debt obligations each year. These obligations had always been paid by a local bank, but after payment the canceled obligations were delivered to the school district office and then became our responsibility. Since they represented the evidential support for disbursement of substantial sums of money, proper control and disposition was an important matter. We were also responsible to the state department of audit and control which specified the manner in which such canceled obligations were to be handled and ultimately distributed.

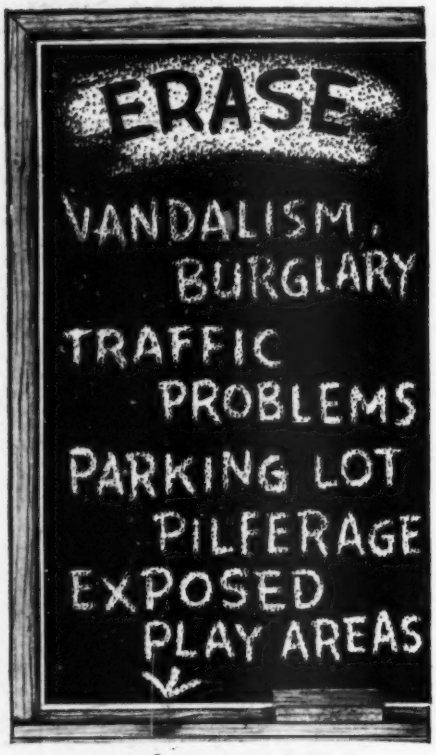
In these times of increasing budgets and resulting demands for economy in school administration, our district has been searching for ways and means of reducing overhead expense. Since there are a great many important administrative matters which require attention, the need for district employees to spend hours in counting, sorting and auditing canceled coupons and posting the required records seemed an unnecessary burden.

When we heard of a way in which we might be relieved of this burdensome detail and have it performed by a professional agent, we were naturally very interested. The bank's proposal appeared sound and logical but before agreeing, we felt that several points should be clarified.

Local bank happy

The first concerned our local bank which had been paying our bonds and coupons and rendering us various other services for many years. We were understandably reluctant to do anything which might disturb this relationship. We were assured that this would not be necessary. Not only would the local bank remain as a paying agent but all debt service monies could continue to be deposited with it. It would be necessary under the proposal to designate Bankers Trust co-paying agent for all existing and future bonded indebtedness. Since this would result in most of the obligations being sent to New York City for payment, the bank officials undertook to explain the proposal to the local bank and work out appropriate arrangements whereby the latter would be adequately compensated for its part in the new procedure. We were later assured by our local bank officials that they had no objections to the proposal and that the arrangements were more attractive to them than the former practice.

Our next question was whether or not the proposed procedure would comply with regulations of the state department of audit and control. We



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were told that the procedure had already been cleared with the state comptroller's office. In order to remove any doubt, however, the bank prepared an outline of its proposal which we forwarded to the department for clearance. The requisite approval was received promptly.

Cost nominal

A final important question had to do with the cost of the proposed service. Like all similar districts we operate on a tight budget and any increase in expense was obviously a matter of great concern. Applying the quoted fees to our schedule of bonded indebtedness, the total cost of the complete debt service worked out to a maximum of $371 a year. Until additional bonds were issued this fee would decrease each year as bonds were retired. In view of the fact that we were already employing an agent to pay our bonds and coupons, the added annual cost for the additional service came to less than $30. Viewing our savings in clerical time and the offered assumption of responsibility, the proposal was obviously a real bargain.

How the procedure works

After we had indicated our acceptance of the proposal, Bankers Trust arranged for a representative to visit our office and review our existing records. A complete schedule of outstanding indebtedness was prepared by maturity dates. A record of obligations which had matured but were still outstanding and unpaid was prepared and reconciled with the balances in our banking accounts. The canceled obligations which had been delivered to us were taken by Bankers, verified and subsequently cremated by them. Differences were reconciled and all accounts eventually put in proof as of the inaugural date.

Under the present procedure, the district keeps a record of dates on which bonds or coupons will mature. Shortly before each such date a check for the amount due is drawn to the order of the local bank and deposited in the debt service account. Holders may present their bonds and coupons for payment either to the local bank in Huntington or at Bankers Trust Co.

Bonds and coupons presented to Bankers Trust for payment are canceled, audited and retained by it. Obligations paid at the local bank are canceled by it and shipped to New York at the end of each month together with a statement of the debt service account. Bankers Trust audits the obligations paid and reconciles all payments made during the month.

Each agent prepares monthly schedules on special forms showing total disbursements during the calendar month. These are broken down by issue and maturity date. The coupon schedules show for each issue and separate maturity of coupons paid, the total number of coupons, the face amount of each coupon and the total funds disbursed. In addition to this information the bond schedules also show the serial numbers of the bonds paid.

Fast reconciliation

Instead of receiving the canceled obligations, the school district receives copies of the monthly schedules together with the original of the bank statement of the debt service account. Reconciliation requires only a few minutes time!

At the end of the district's fiscal year which occurs on June 30, the bank prepares and forwards to the district a consolidated bond and coupon schedule showing all disbursements made during the fiscal year and a summary of all obligations which have been paid and canceled during the year. Each year's payments are treated as a separate unit for purposes of audit. The canceled obligations are kept together and stored in the bank's vault. They are made available for inspection and audit at any time by representatives of the district or of the state comptroller's office. There is no charge for this service.

When all audits have been completed—and not later than two years following the close of the fiscal year—the obligations are destroyed by burning and the bank's certificate of cremation, to which copies of the annual schedules are attached as exhibits, furnishes a complete record of disposition.

We have found this an efficient and time saving arrangement. Not only are district officers and employees spared the work of handling the canceled securities, but we believe we now have a much improved accounting control over disbursement of debt service funds. **End**

Excellence

In rapid succession has come a series of public-spirited surveys which point up the critical needs of American education, today and tomorrow. To name a few: *The Pursuit of Excellence,* a report financed by Rockefeller Brothers Fund, Inc.; *The American High School Today,* the James B. Conant report financed by the Carnegie Corporation; *Memo to a College Trustee,* a publication of Beardsley Ruml's study financed by the Ford Foundation; and *Education for the Age of Science,* a report of President Eisenhower's Science Advisory Committee headed by James R. Killian, Jr.

All these and other findings quicken us like the touch of a rapier to the importance of excellence in our educational system.

NESBITT, with more than 40 years of pioneering in the field of classroom thermal environment—and always an exponent of excellence in its heating, ventilating, and air-conditioning products—is proud to be associated with the teachers, administrators, board members, parent-teacher groups, citizens committees, and others who strive to give every American youth the opportunity to excel.

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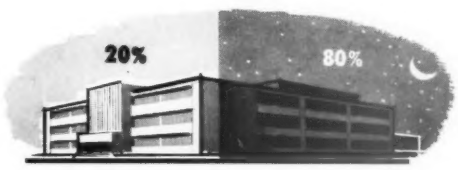
CLASSROOMS HAVE COMFORT PROBLEMS

Thirty students generate enough heat to keep your living room comfortable in freezing weather. Classroom lights add as much heat more; and the sun through large windows can raise room temperatures 20° to 30°. Therefore, cooling is needed even in winter.

Natural body odors make the room stuffy. Thirty students give off two quarts of moisture an hour. Ventilation with fresh outdoor air is needed in occupied rooms.



Each unoccupied classroom requires more heat than an average home; and 80% of the fuel dollar goes to warm an empty building. Reduced night temperatures are required for economy. Fast heat for morning warm-up is essential for comfort.

All these factors vary from hour to hour, day to day, and room to room. Failure to control any one of them means failure to provide the *right learning environment.*

Nesbitt Comfort Conditioning solves these difficult problems by providing heating, cooling, and fresh-air supply for each individual classroom under precise automatic control.

If you would like to know more about how your community can benefit from Nesbitt-equipped schools, write for Publication 101.—John J. Nesbitt, Inc., Philadelphia 36, Pa.

What makes a cafeteria 'good'?

In California, the Association of School Business Officials decided to find out. Here are their observations, based on a major study.

■ ■ ■ What keeps students from eating in school cafeterias?

In California, the Association of Public School Business Officials, striving to improve cafeteria service, set out to discover just what its potential customers wanted. At the same time, in a massive survey designed to answer many questions about food service, the association questioned several other affected groups to find out just what they thought was the cause of participation or lack of participation in school cafeterias.

The California group confined its survey to the junior high schools of 18 districts in the state. Altogether 62,886 students attend these schools and a total of 26,194, or about 40%, avail themselves of the lunchroom facilities. Participation in the districts ranges from a high of 99% down to 13%.

Questionnaires, similar in content but tailored to each group, were sent to administrators, parents, teachers and students. In addition, Mrs. Virginia McMasters, district director of lunchrooms in Berkeley, Calif., was asked to present the psychological, emotional and social factors affecting lunchroom participation, as seen by the cafeteria supervisors.

Supervisors' opinions

Mrs. McMasters stated: "Many psychological, emotional and social, and in individual children, physiological factors which are difficult to appraise, may influence participation."

Among these factors are: importance of group approval; satisfaction of child's taste, which is not met at home; flexibility of menu; influence of national and social customs; family attitude toward specific foods and, in girls, consciousness of figure, which leads to dieting.

Mrs. McMasters said serious emotional problems faced by the child may directly affect his eating habits. Tensions in the home or at school can make him indifferent to food. On the other hand, feelings of insecurity might turn him into a compulsive eater.

In discussing social factors, Mrs. McMasters observed that, in metropolitan districts, student preferences seem to run along national lines. For example, she said, a school with a high percentage of Italian students may make its lunch program more successful if it puts ravioli or spaghetti on its menu. The supervisor further noted that children of families in low income groups often are reluctant to try unfamiliar foods.

Results of the study indicate that there are other trends in student preference: Of the nine top-rated districts in the survey, eight reported serving potatoes more than once a week, while seven of the nine lower-rated indicated they did not. Only one of the top nine did not include dessert in Type "A" lunches, while three of the other nine charged extra for dessert. Eight of the top nine offered seconds, but only three in the lower group did. The presence of a la carte menus did not seem to be a factor in participation. (It should be noted, however, that 32% of the administrators implied that students might be receiving a better nutritionally balanced meal for less money a la carte than from an "A" lunch.)

As teachers see it

Seeking teachers' opinions on how to develop greater lunchroom participation, the study group circulated 420 questionnaires among 42 schools. Answers were received from 259 teachers. Although a statistical tabulation has not been completed, written comments included: "There is a lack of communication among teachers in any one school . . . too often one teacher did not know what others were doing, what the school was doing, or what the program intended in the lunch area."

Among suggestions offered by the teachers to improve participation:

"Eating in the lunchroom should be made to seem more 'in vogue' rather than something done by 'squares.' This might be done through appeal and advertising to the students by their own groups in their own style."

"Advanced homemaking students should assist in preparing salads or desserts under supervision of lunchroom supervisor, if permitted under regulations, to gain experience and develop interest in the lunch program. They should also assist with the serving."

"Individual or small group discussions point out the value of certain foods for specific benefits. This can apply to those suffering from acne, obesity, listlessness, etc. Pupils at the junior high school age level are very conscious of their appearance."

Some teachers report that their homerooms "use participation in the lunch program as a weekly or

1. ADMINISTRATORS RANKED THESE FACTORS MOST IMPORTANT

Order of importance		Frequency
1	Type of menu	80
2	Cost of menu	39
3	Social atmosphere	30
4	Serving facilities and methods	29
5	Type of lunchroom supervision	22
6	Lunchroom decor	25
7	Correlation of school lunch with entire curriculum	24
8	Type of dishes and silver	41
9	Competition from private soda fountains, etc.	26

2. STUDENTS EATING SCHOOL PREPARED LUNCHES

Ranking by students on basis of total selected factors 1 through 4		Ranking by students on basis of selected factor No. 1
1	Price of meal reasonable	1
2	Aware that the cafeteria provides a healthful, well-balanced meal	2
3	Good, tasty food well prepared	4
4	Provides opportunity to meet with friends	5
5	Encouragement by parents to eat in cafeteria	3
6	Food servings large enough	6
7	Menus published in advance	8
8	Attractive lunchroom	11
9	Right amount of adult supervision	9
10	Minimum of waiting in line	10
11	Encouragement by teachers to eat in cafeteria	7
12	Minimum of time spent in collecting lunch money by teacher or other person	12

3. STUDENTS NOT EATING SCHOOL PREPARED LUNCHES

Ranking by students on basis of total selected factors 1 through 4		Ranking by students on basis of selected factor No. 1
1	Food not tasty, or not enough variety	2
2	Prefer to eat at home or bring sack lunch	1
3	Have to wait in line too long	4
4	Cafeteria servings too small	3
5	Food too expensive	5
6	Not enough time allowed to eat meal	7
7	Too much adult supervision	6
8	Not enough adult supervision	9
9	Lunchroom not attractive	8
10	Takes too long to collect cafeteria money	10

monthly project, marking gains in participation on a large chart." Art teachers told how their departments stimulate participation.

"Colorful, attractive posters depicting balanced meals, good manners, etc., are made in the art classes and displayed in the lunchrooms and in classrooms."

"Art classes give special recognition, through posters and displays, to Dairy Week, Apple Week, Nutrition Week, and many others."

What administrators said

District administrators were asked to rank the factors they thought most influenced student participation. A total of 147 questionnaires was mailed to junior high school principals throughout the state. Of these, 129 were returned, four of which could not be used in any part. The schools they reported on served from 95 to 1,250 lunches per day.

As shown in Chart 1 (*see opposite page*), administrators rated and weighted nine factors influencing lunchroom participation. They were asked to number each choice from one to nine. The figures at right show the number of administrators who ranked each factor at the level it attained in the overall ranking.

It is interesting to note how keenly aware administrators are of the social aspects of lunchroom participation. Supporting this view is the fact that 97% of the schools allow the student to select his own table.

However, only 1% of the principals said there was no teacher supervision of the cafeteria. Although 43% of the respondents said music was played in the lunchrooms, of the five districts with highest cafeteria attendance, three did not allow music, one permitted it occasionally, and only one regularly.

The study disclosed that 80% of the principals had "closed campuses" at noon, so outside competition as a deterrent to good participation was not important.

Parental responses

A one-page survey was taken among parents in an effort to gather opinions from different areas of the state. This section of the study was not treated as a scientific document, however. Its findings can only show a general trend at best. Listed on the survey page were 12 factors, chosen at random, which "seemed to have a direct bearing on lunch participation at the junior high school level." Each person replying to the questionnaire was asked to rank these 12 factors in order of importance.

As with the other groups questioned, parents felt that type and cost of meals were the two most important considerations. Surprisingly enough, parents indicated "lunch program used as means of promoting health education" as being the third most vital factor in their opinion.

Many of the remaining nine factors listed on the questionnaire received such close scoring that placing them in exact order, one below another, was impossible. A second part of the parent and layman questionnaire invited free expressions of opinions from the parent viewpoint. Among these were:

"Parents do not realize the problem, but would help if they knew about it."

"I have never been conscious of parents or lay public being particularly interested in increasing lunchroom participation at this level. They accept the child's reasons for not eating in lunchrooms."

What students disclosed

These then were the opinions of some of the groups indirectly affecting and affected by lunchroom participation in the schools. But what of the students? How concerned were they with diet, with cost, with atmosphere or with parental or teacher approval?

Questionnaires were sent to a cross-section of students, representing schools of every size with all degrees of lunchroom participation. Answers from 710 students disclosed that 50% of this group ate school lunches. An analysis of their answers is shown in Charts 2 and 3. Responses of students who patronized their cafeterias were grouped to form Chart 2. They were asked to consider 12 factors, and rank them in order of personal importance. The lefthand column gives the ranking based upon the student's first four choices, while the right hand column is based upon first choice only. In Chart 3, the non-participating students give their reasons for not using school facilities.

Chart 2 shows that the students were keenly interested in the cost of school lunches. It is worth noting that costs among the 12 top districts in participation did not exceed 30¢ while four of the six lowest rated districts charged 35¢. The chart also shows that students are very much aware that their cafeterias "provide a healthful, well-balanced meal."

"Good, tasty food well prepared" is a prime consideration, but whether cafeterias meet this requirement seems to be a matter of personal judgment. Lunchroom participants ranking factors in Chart 2 were obviously satisfied with the taste and preparation of the food, but the non-participants, represented in Chart 3, rated food taste and preparation of the food at the top of the list of reasons for not using the cafeteria. And the very same lunchrooms were involved!

A factor of lesser import, according to Chart 2, is "encouragement by teachers." The study group found that "selling" the lunchroom in the classroom could not be considered a decisive factor.

A quick look at Chart 3 will establish some fairly constant guideposts to improve lunchroom participation, if it is agreed that satisfaction of customers is necessary to that end.

Students ranked factors very close to their stomachs and pockets as the important ones in turning them away from the lunchrooms. Tasteless food lacking variety ranked at the top. A preference for eating at home or bringing a sack lunch, presumably prepared by that master chef each child calls mother, was second choice. Then followed in quick order time spent in lines, (you can get to a sack lunch much faster), the size of servings and their expense. Such psychological factors as time allowed to eat a meal, amount of adult supervision and attractiveness of lunchroom brought up the rear of the list.

Although the survey and accompanying opinion questionnaires cannot be said to be a scientific expression of opinion, the material presented is clear in its point of view and may well provide cafeteria supervisors and administrators with food for thought—when they have trouble getting their customers to accept their food for health. **End**

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Light on the subject

Here's how one school district put new lights in its old schools

By SYLVESTER BILLBROUGH, *President, Paulsboro, N. J., school board*

■ A school without proper lighting can come perilously close to being inadequate so far as education is concerned. And frequently, both school authorities and students can be unaware that they are laboring under a serious handicap.

We discovered those facts recently at the Paulsboro, N. J. High School, where, for many years, the building had been equipped with the old bowl-type hanging lamps. Investigation showed that these lamps were giving us about eight or 10 foot-candle illumination compared to state requirements of 30. In other words, our teachers and students were getting approximately one-third the light they should have been getting.

The difficulty was particularly acute in the mechanical drawing rooms and those where our students operate business machines such as typewriters and comptometers. A survey showed that many of the students were working in almost continuous shadow, and it actually was a wonder how they could see what they were doing.

The school authorities made a study of more modern types of lighting, and eventually decided to try a type called "Mirac-O-Lite," in use in the West Deptford, N. J., school district.

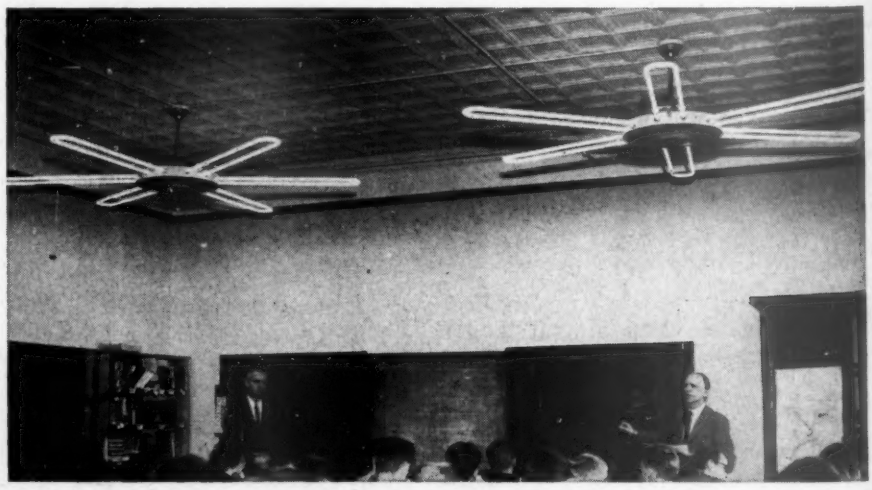
First we installed four of the lights to obtain a preliminary reaction from the teachers and students in the mechanical drawing room. When they expressed satisfaction with them, we made similar installations in other rooms, until now a total of nine classrooms are equipped with this lighting.

Even though the installations were made after the school term began, there was no disturbance, since the work was done at night and over the weekends. The total cost was about $2,000, or approximately $2 for each of our students.

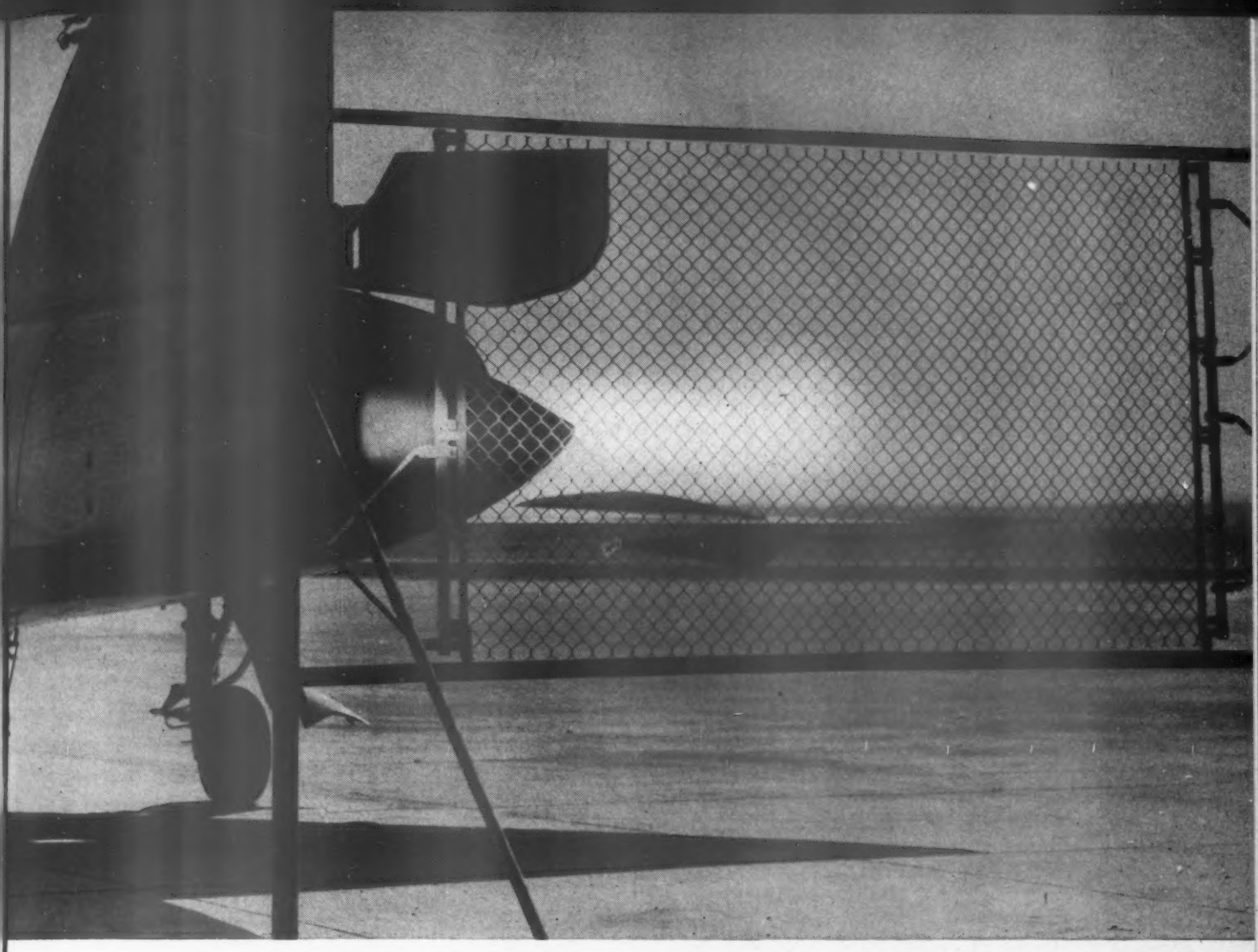
One reason why this type of lighting can be installed with so little confusion is that existing outlets are used, so that there are no rewiring costs. By the very nature of these cold cathode lamps, replacement, operation, maintenance and service costs are very small. In contrast with the old lamps, which had to be taken down for cleaning, these can be cleaned with an ordinary rag, without removal.

We feel confident that for a very few dollars we have been able to bring our students out of what had amounted to a shadow world. **End**

For more information on these cold cathode lamps, circle number 843 on the Reader Service Card.



No rewiring was necessary for cold cathode lights. Existing outlets were used.



USS Cyclone Steel Fence withstands extreme temperature and pressure from jet blast!

At the Youngstown, Ohio, Municipal Airport, a test panel of USS Cyclone Chain Link Fabric was set up. This Cyclone Fabric was then subjected to the extreme temperature and pressure created by the jet blast from a Convair F-102A "Delta Dagger" fighter.

After the test, the piece of fabric was carefully checked to determine the degree of damage. There was none—proving that *steel* makes a superior fence fabric.

Jet planes are not common school ground equipment; but accidents involving extreme heat and pressure can occur at schools. A grass fire could break out, a maintenance man could start a trash fire too close to a playground fence or a car could accidentally crash into the fence. You'll feel more secure, be sure that the children left in your responsibility are safer, when your school is fenced with Cyclone, the fence that has proved it can stand up under adverse conditions.

When you deal with Cyclone you are dealing with the most experienced fence manufacturer in the world. This experience combined with the research and engineering facilities of United States Steel, assures you of quality products at the lowest possible cost.

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How a small district recruits teachers

By IRA B. RALSTON, *Superintendent, Aspen, Colo.*

Aspen, Colo. had 30 candidates for seven openings in 1956. In 1959 there were over 300 applicants and the district was fully staffed for 1959-1960 in May. Here's how it was done.

■ ■ ■ What can a school do to attract and retain an adequate supply of teachers in a highly competitive field?

This is what we did in Aspen, Colo., to attract teachers.

First, let me explain the situation as it stood during the summer of 1956. We had seven openings to fill and had received around 30 or 35 applications to fill these vacancies. This was not what one would consider a broad choice of candidates, though many other small schools had received fewer applications than this. It must also be remembered that these same candidates probably had applied at several schools; so, when the opportunity arose to employ a person, we didn't have much choice but to offer a contract, because we did not know when we would receive another qualified applicant. Even at that we didn't fill our last position until the last week in August and school started the first week in September.

Aspen is a small community of some 1,500 inhabitants. We're known as one of the foremost ski centers in the world today and are fast becoming known as a world-renowned cultural center during the summer months. Agricultural interests tend to stabilize the economy. Many widely known persons have moved here to make their homes and to enjoy the beauty and grandeur of the area—and more important, to have their children educated under the advantages offered by a small school.

In the spring of 1957 a citizens' council was formed to help the board of education and administration study various school problems. It was decided that one of the most pressing problems was the matter of teacher recruitment and retention and that something had to be done immediately to better the situation.

Selling the city

The first thing that was done was to establish a mailing list of teacher placement bureaus, both teacher training institutions and commercial, to better advertise the positions that were open. However, it was decided that merely to advertise the vacancies was not enough and that we should advertise the community and what it had to offer to prospective teachers. It was further decided that the advantages of a small school should be exploited. A simple four-page brochure containing 600 words of copy, was developed to do this and was mailed with the vacancy notices in the spring of 1958. The initial mailing went to about 300 institutions. Altogether we mailed over 800 notices and brochures last year.

As applications were received a brochure was sent to the applicant along with a formal application blank. From the time our vacancies became known in April until the middle of June, we received over 300 teacher applications. In this manner we were able to select from a much broader sampling of teacher applicants and could more easily look for personnel to fit into our particular situation. The quality of our staff was raised in this manner.

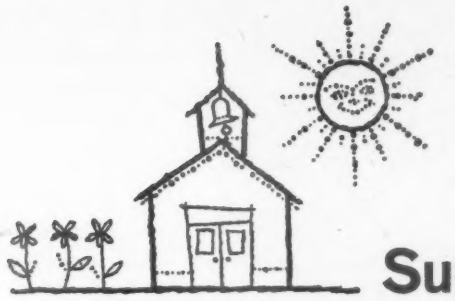
February contract time

This year we offered contracts to our staff in February and determined our vacancies at an earlier date. The same procedure, sending brochures with announcements and application forms, was used and by the first week in May we had received more than 300 applications for four vacancies. We had our staff for 1959-60 employed by the time school was out at the end of May.

We expanded our recruiting practices this year. Vacancy listings were sent to 353 institutions. I traveled to various cities to hold interviews with applicants, as we felt the personal interview is an integral part of the employing procedure. Final applicants were invited to Aspen to view the situation for themselves before we offered them contracts.

Whether we have a vacancy for which an applicant applies or not, we send an application to be completed. In this manner we are able to complete a file with various teaching combinations.

The entire program, including travel, printing, mailing, etc., has



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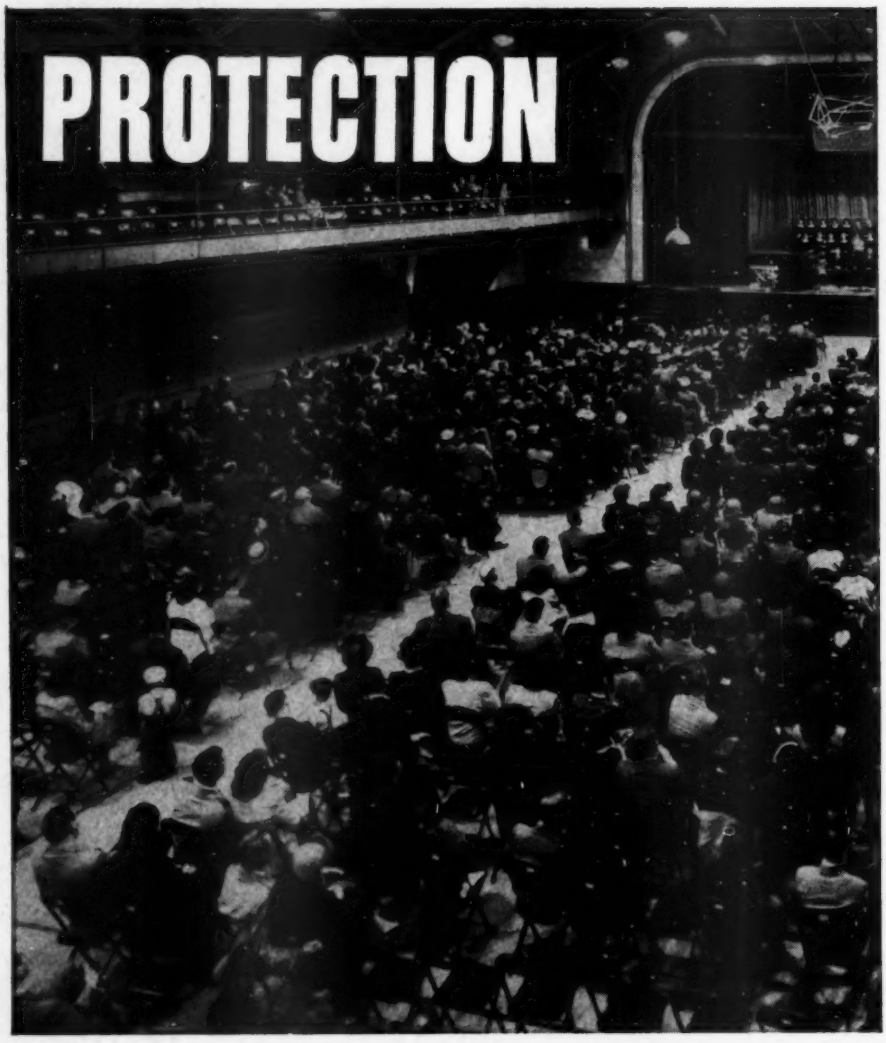

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Must your gym double as an auditorium, dance hall, roller skating rink, short cut to other parts of your building—even a play area? Then be certain the floor is protected for long life, and *let the finish take the wear!*

Seal-O-San gym floor finish offers the advantage of protection, *plus* slip-resistance, durability, light color, easy application and simple maintenance. Ask our representative, the Man Behind the Huntington Drum, or write for more information about Seal-O-San gym floor finish. And if you have wood floors in halls, classrooms or elsewhere in your building, ask about the Seal-O-San products which will help lengthen their life while beautifying them. Write today!

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cost about $400-$500 per year. This is negligible if you consider that in this manner we are able to offer a better educational program for the students of our community by acquiring more and better teachers. Our specific program has cost the school district absolutely nothing, since it has been financed by the North Star Foundation, a local foundation with education improvement as one of its objectives.

As a result of our program we have been able to build an active file that currently numbers about 500 applications. This file can be referred to each year to fill teacher needs. In addition, we continue to mail our vacancy lists to colleges and teacher training institutions.

We feel that this type of recruiting can be accomplished in any community at low cost.

Something to offer

We further feel that every community has something to offer regardless of location, and that these offerings should be exploited and advertised. The key point is to get persons in the community to work on the program. The local newspaper editor can write the brochure. Others can help find housing for the new teachers.

We have recruited in this manner for two years. It does not take a large force of office girls to carry on the correspondence. To start, we had only a part-time secretary—this year she works full time. I review all applications and she does all the clerical work. Actually, we have had to resort to a form letter as we can't answer all applications with a personal letter.

Incidentally, our salary schedule is not what is considered attractive. Base for a BA is $4,100 and for an MA it is $4,400 and that is only because we raised the scale this year.

Activities such as this have been practiced for many years by large city school systems, expending huge amounts of money, but rarely has it been done by a school the size of ours. Perhaps this method will not solve *all* recruitment problems, but we are certain that, if tried in any system, it will produce immediate results and that many problems of teacher recruitment and retention will be relieved. The small school can be made as attractive to teachers as the larger school. **End**

Gimmicks & Gadgets

Here are some inexpensive items you might use in your next school campaign

■ ■ ■ Have a school campaign coming up? There are dozens of attention-getters available that are eye-catching and inexpensive. They'll help focus attention on your campaign and aid in getting out the vote. Here are a few that have been used successfully in the past:

Auto stickers

"Better schools build better communities" is the slogan on football-shaped blue and gold windshield

stickers prepared by the Herff-Jones Co. of Indianapolis, Ind. They cost $3 a hundred and are an extremely good campaign tool.

Stationery

Why not add the better schools slogan to your school stationery?

Free glossy prints or mats are available from the National Citizens Council for Better Schools, 9 E. 40th St., New York City.

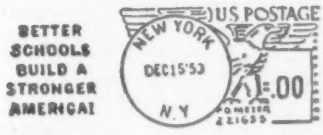
Match books

Smokers always appreciate a free book of matches. Why not have them advertise your schools? For about $5 a thousand you can get a specially designed book imprinted

with your message. It may be possible to get a local merchant to pick up the tab. Whoever pays for the job, distribution is no problem. All cigar countermen will be glad to hand them out.

Postage meters

Every letter can carry your better schools message. If you use a post-



age meter, an extra $10 will get your own advertising slogan imprinted. Order it from Pitney-Bowes, Inc. in Bridgeport, Conn. And while your at it, contact other big mailers in town. Chances are they use postage meters too and would be willing to put your message on their letters for the duration of the campaign.

Calendars

Every home needs a calendar. Instead of pretty girls, pretty boats or pretty mountains, why not beautiful schools? The U. O. Colson Co., Paris, Ill., produces a better schools calendar. Each month carries a message about a particular school problem and also has hints for housewives. You—or the banks or merchants in your town—can send them out the first of the year with any imprint you want. Costs vary with the quantity ordered.

License plates

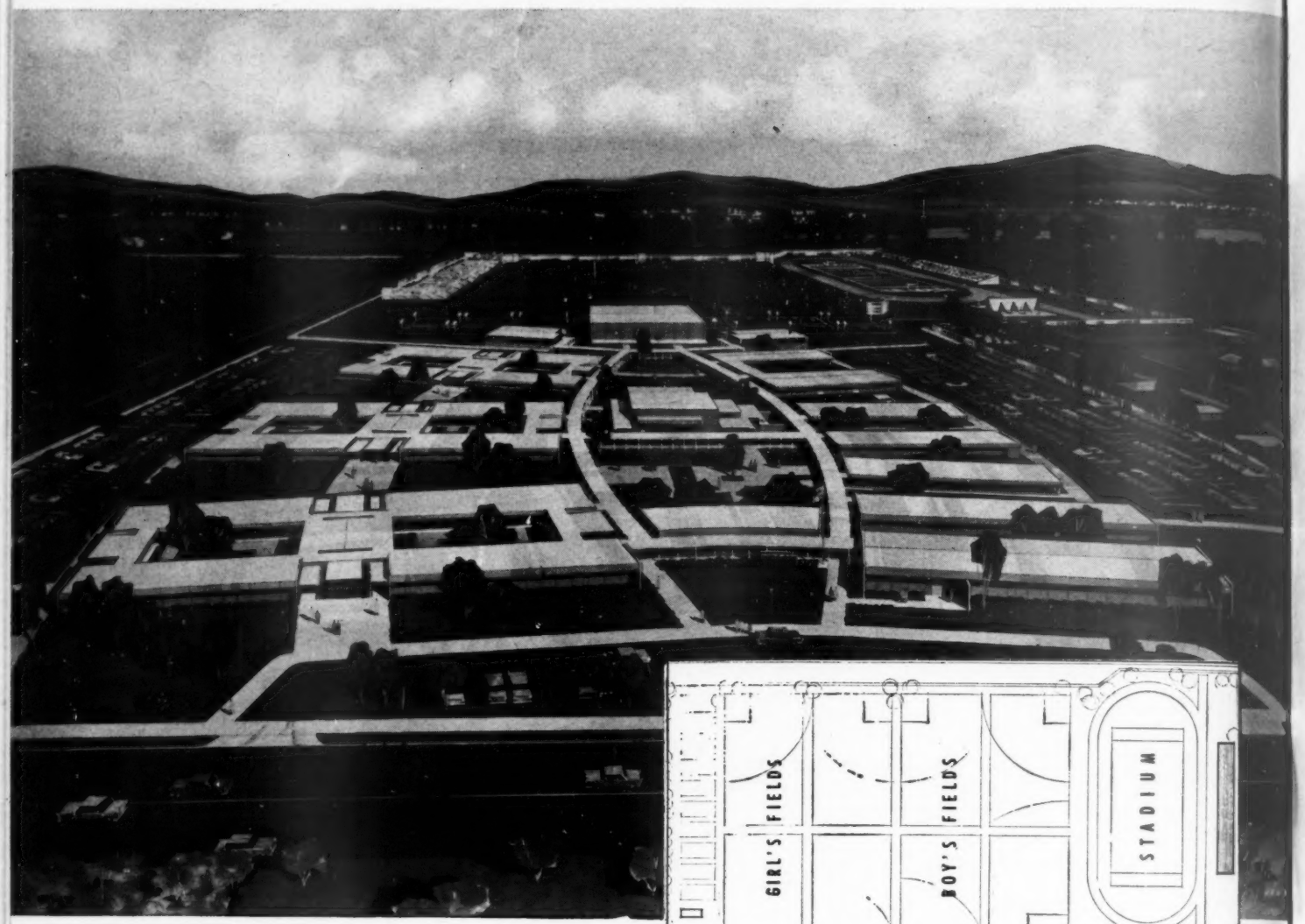
In states that require only one license plate, you may be able to

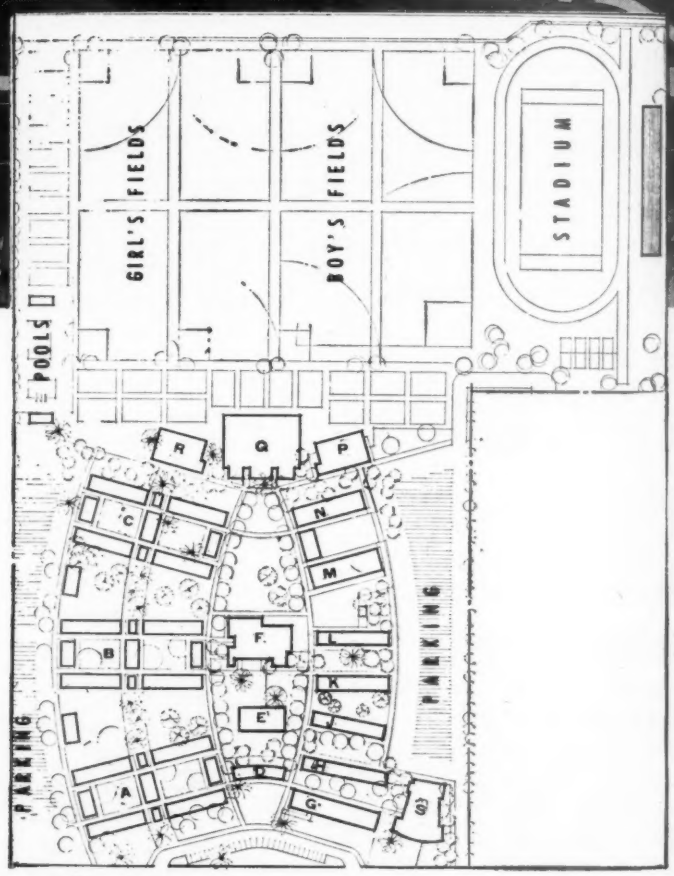
get drivers to put the better schools slogan on the front of their cars. The American Advertising Co., Tallahassee, Fla., has produced license plates with the slogan. They cost 25¢ apiece but will outlast your campaign, keeping the better schools motto before the public.

Lapel buttons

It's always a nice feeling to know that people walking in the street are on your side. Lapel buttons are a good way to demonstrate your feelings. A ⅞-inch diameter round button with the better schools slogan is available from the Green Duck Co., Chicago, at a nominal rate. Better than that, why not get your own local slogan imprinted? A "Vote YES Tuesday" button can be a big help in reminding your constituents to get to the polls.

Remember, it still takes a lot of hard work to put over a school budget or bond vote. But these gimmicks and gadgets can help. **End**





Bellflower's new Mayfair High School is being constructed specifically to house a school-within-a-school. Artist's drawing above corresponds to plan shown at right. The school will have three sub-schools, shown as A, B and C on the plan. Open and closed walks will connect the buildings. The administration, multi-use and library buildings, D, E and F, are centrally located. Special areas to be used by all students include the music building (G), arts and crafts (H), Business education (J), Science rooms (K and L), shops (M and N), the gym (Q) and the auditorium (S). Boys' showers and lockers are located in building P. Girls' facilties are in R. The school is being constructed on a 45-acre site and is designed to serve 2,000 students. Sub-school C, the auditorium and two pools are to be constructed at a later date. The multi-use building will serve as a cafeteria and auditorium for the present. Its stage can be opened to the outside to serve a court-yard assembly of the entire student body.

A Sub-school
B Sub-school
C Sub-school
D Administration
E Library
F Multi-use
G Music
H Arts and crafts
J Business education
K Sciences
L Science
M Shops
N Shops
P Boy's shower and locker
Q Gym
R Girls' shower and locker
S Auditorium

continued from page 36

person works with each sub-principal. That's part of each sub-school's team. There should be more, in our estimation, but that's what we have. So there are two non-teaching staff people for each sub-school.

Q Do you find that you need fewer or more non-teaching curriculum people or guidance people—or specialists of that type?

WAMPLER: We changed from the traditional organization to this a year ago. But we didn't change our ratio. Quite conceivably we need more people. We could build a case for more people, more guidance people in particular, although we have more than the national average.

PRASCH: Since we're talking about economy, I might add that the counseling is more effective this way, and, therefore, it's much more economical. In this organization the same counselor is responsible for a youngster over a four year period. On that basis, he'll work more economically in terms of his time than he would under our old organization where each of the counselors were organized on the basis of function so that one handled certain kinds of counseling, and others another kind.

Q. Does the plan, so far as you can see, require fewer teachers, or more, or about the same?

WAMPLER: If you are willing to be flexible enough so that you recognize that two sub-schools might have to share a teacher on occasion, you wouldn't need any more teachers.

PRASCH: If you insisted on sticking slavishly to your organizational lines so that anyone who teaches an elective could not teach a required —or if you said, "We can't cross the sub-school lines in teacher assignments at any point"—you would probably end up with needing a little more personnel. But this is not a serious problem so long as the total student population is large enough—2,000 and above.

Q. Is there any reluctance to innovate on the part of your three sub-school principals? Do they all have to follow pretty much the mold that has been set down?

PRASCH: We are constantly asking ourselves, as we operate, at what point it is important to conform one to another and at what point we should allow some individuality. Our faculty meeting agendas are planned together, but results are frequently very much different. It depends a great deal on the kind of leadership the sub-principal is able to give. We find that the sub-administrators are continually tampering with such things as forms, which you might expect to be pretty much uniform. Someone comes up with a new gimmick, a new way of doing something, or the teachers in one sub-school get together and lead us into some new areas of curricular thought. We are constantly aware of innovations that will eventually lead us quite far apart and we are always trying to evaluate how much uniformity is necessary and how much individuality we ought to encourage.

WAMPLER: In essence, we think that some innovation is desirable but that too much might be undesirable. The coordinating principal is in a very key spot. He must keep some common pattern, a common philosophy. We certainly don't want to get miles apart.

Q Have you found a competitive situation building up—not student-wise, but faculty-wise —within these sub-structures?

PRASCH: We haven't found much of it yet, but I am surprised we haven't found more. It is just beginning to happen. I think this competition is good.

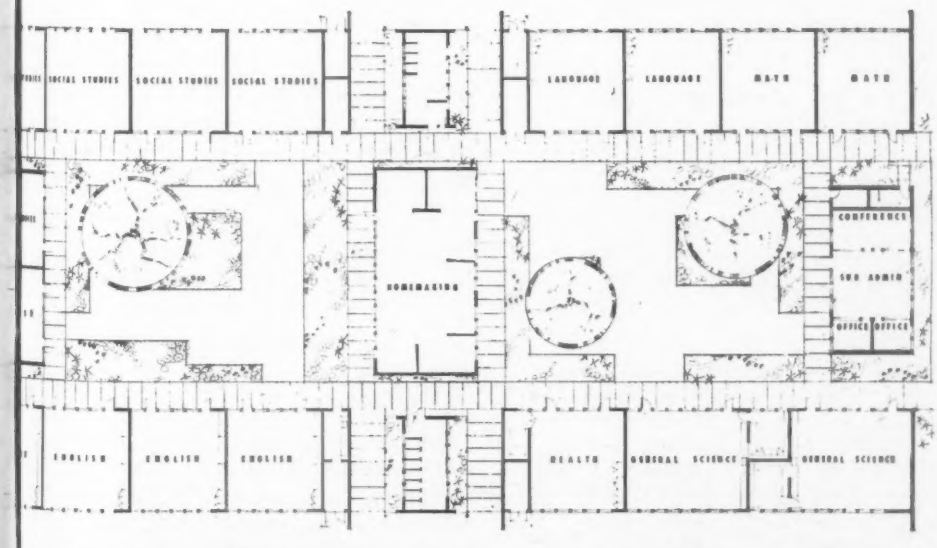
Q. Can you forsee, at any time in the future, one of the sub-schools having the reputation of being better than the other two?

PRASCH: I think this could very well happen, particularly when one group of teachers remains stable over a period of time, or where a strong sub-administrator is reinforced by a strong counselor.

Q. Won't parents be eager, in that case, to get their kids into the sub-school with the good reputation?

PRASCH: This happens in the conventional school. It happens within the classroom. Parents and students have a preconceived idea as to which teacher they would like to have—and this is just an extension of the same problem. As long as people behave like human beings, I don't think we can avoid this.

WAMPLER: Furthermore, we can control the problem to a considerable degree because there is always teacher turnover. We can keep a balance as we hire new teachers. For instance, in our elementary schools, we try to keep the staffs equal in ability. We won't let one of



Plan of one sub-school shows classroom and court yard areas. One-third of students will attend required course and such high interest electives as languages and homemaking in this building. Note office for sub-school administrator at right.

them get all the good English teachers, for example.

Q. How did you split up the kids when you reorganized last year?

PRASCH: Our attempt was to have groups as much like one another as possible—completely heterogeneous grouping. It was done pretty much on the basis of dividing students who had been classified as slow learners, dividing the high ability people and seeing that each sub-school got an equal number of each. We tried to avoid any one sub-school seeming to have the corner on all the brains—or all the talents. We now have some test data which indicates that the sub groups are practically the same in terms of ability.

Q. How did you split up your faculty?

PRASCH: This was tough—and interesting. We had an existing faculty and had an existing group of administrators. All of them had opinions about one another. The initial year we let the teachers make a choice—they made a first, second and third choice and we agreed beforehand that no one would view these choices except the person making the assignments.

Q. You mean you let them select their sub-principal?

PRASCH: Yes. It turned out, in making the actual assignments, that no one got his third choice, but many people got their second choices. The second year the assignment problem isn't so acute because only new people are assigned to replace the ones who leave. Interestingly enough, we have had no requests from teachers, since the first year, to work with different sub-administrators.

Q. Has there been any necessity for moving teachers from school to school?

PRASCH: Only in schedule making. We've moved two teachers because they had requested to teach different kinds of subjects. This resulted in some schedule adjustments. Other than that we have made none. Of course, each time you do this it destroys some of the theory behind the little school. The idea is to get a group of people who will have continuity with the youngsters and get some sense of working together over a period of time. So, to move teachers literally destroys the reason for organizing this way.

Q How did you pick your three sub-principals? Were they members of the faculty?

WAMPLER: We already had three assistant principals under our old organization. They had been assigned responsibility areas, rather than youngsters per se. In other words, we had a man who was called "boys' vice principal," someone else who was called "girls' vice principal," and a third person who was called "director of curriculum." We had to reassign their responsibilities, but they were already there.

Q. Would you have picked teachers as sub-school principals if these men hadn't been available?

WAMPLER: Teachers or guidance people. People whom we thought had lots of ability in the area of general administration. Incidentally, we think guidance experience is very good training for any administrator.

PRASCH: One of the big differences in this approach is the degree to which you recognize specialization of functions of administrators. In other words, people in this plan are "general practitioners." In most other large schools, we tend to differentiate rather sharply in terms of specialization. We get a highly specialized staff of counselors on one hand, and administrators on the other. The larger your staff, the more sharply you differentiate in terms of function. We think some of this is bad for the kids.

WAMPLER: Furthermore, we think it's a waste of time. Everybody has his own record on Johnny. Everybody has his file—the attendance man, the guidance person, the vice principal, the principal. If the parent comes in with a problem about Johnny, who is he going to go to—all four of them? Sometimes he does. We think such practice is artificial and a waste of time and money.

PRASCH: A child soon learns to play one of these people against the other. The traditional thing, in many high schools, is to play the counselor against the administrator or the teacher. This puts the counselor in a poor spot—and explains why, in some schools, counselors aren't too popular with the classroom teacher.

Q. Do you have ability grouping within your sub-schools?

PRASCH: We have our slower classes in each school. In other words, there is a slow learning English class in each of the three schools.

Q. Doesn't the reduced enrollment in each school legislate against grouping?

PRASCH: It depends on how far one wants to go with ability grouping. Each of our sub-schools has almost 700 students and, within that number, we can group several ways.

Q From a space point of view, does the little school plan require more space or less space? In planning your new school, do you think you could have gotten by with less square footage, if you had not been split up this way?

WAMPLER: We may have used a trifle more this way. However, our administration building, where the principal is, is much smaller than it would otherwise be. I suppose we may have used a little more square footage, but not much since the big structures needed on any campus will be shared in common—the library, the gymnasium, the cafeteria. In some school districts the little schools have separate libraries, even separate cafeterias for each sub-school. We have not chosen to do so. We think there are some virtues in mixing the youngsters in these activities. And we think it saves us money to do it that way.

Q. In planning your new school, did you build in any extra space in your common facilities so that another sub-school could be added in the future?

WAMPLER: We planned the master plant for 2,200 youngsters. At the moment, we are building for two-thirds of that in two little schools. We think we are going to reach about 1,500 in the next three or four years. But, we can go up to 2,200 by adding a third little school. **End**

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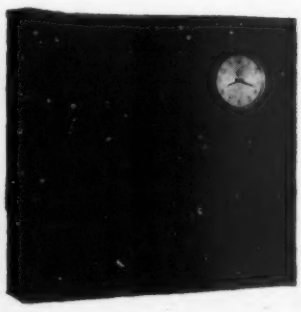

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Why the voters said no

continued from page 39

of about 150, of whom 75 to 80 were considered active. (A few residents were "drafted" because of some special knowledge or ability.)

As Hawthorne tells it, his first problem was to keep "sitting in the same room" people of four convictions: those who had supported—some of them ardently—the defeated proposal for a new senior high; those who favored an addition to the existing high school; those preferring two smaller high schools and, in Hawthorne's words, "those more worried about dollars than schools."

The caliber of volunteer talent available to the citizens' committee is evident from a glance at the list of subcommittee chairmen and the type of work their groups did:

Building construction and design, headed by a prominent real estate developer and financial expert: Inspected a number of new Minneapolis and suburban high schools and made comparative cost studies. The proposed new Edina school, this group found, would have cost "about 20% above other schools we have seen and which we found to be equal to or better than this proposed plan."

Building needs, headed by the plant superintendent of a large utility firm: After surveying land available for new homes, came up with new (and lower) estimates of 1970 public school enrollment (10,998) and of classroom needs, surveyed present school utilization and recommended renewed study of adding onto the existing senior high school.

Educational standards, headed by a newspaper personnel junior executive: After considering various alternatives, concluded that one very large senior high school (2,100-2,700 students) would be preferable for Edina to two fairly large (1,000-1,500) schools.

Economics, headed by a grain firm attorney-executive: Concluded after detailed study of tax rates and debt service that Edina has the *ability*—if it has the *willingness*—to finance almost any desirable long-range school improvement program.

Finance, headed by a bank junior executive: Responsible for raising funds to run the committee.

Long-range planning, headed by a TV promotion executive, active in PTA: Developed a program going beyond the district's immediate needs for high school facilities to a complete listing of all construction needed to accommodate peak enrollments in the late 1960's.

Public relations, headed by the agency account executive assigned to Minnesota's largest industrial employer: Confronted by perhaps the greatest challenge of any of the subcommittees, this group went beyond the normal functions of press, radio and TV relations. The public relations subcommittee enlisted the services of four professional research experts, all Edina residents who served voluntarily, and, in effect, took the community pulse by a telephone survey of a scientifically-selected sample of district residents. Among other things, this survey revealed:

- That there was little strong opposition to new school facilities, nor widespread criticism of the schools.
- That residents believed overwhelmingly that a new high school not only was needed but was vastly preferable to split-session classes.
- That the October bond issue failed because the community felt insufficiently informed.
- That the community was, indeed, so ill-informed—and therefore so ripe for "plush" school charges—that many residents condemned features that had not figured in plans for the school.

A better plan

Obviously the various subcommittees were inclining toward urging restudy of a major addition to the senior high school (Plan two).

As it neared the conclusion of its studies early this year, the citizens' committee did two things which probably clinched the acceptance of its work, both by the school board and administration and, ultimately, by the voters:

First, through its executive committee, the citizens' committee carried the senior high school expansion plan to the school board as a suggesion *before* the full group adopted a formal recommendation.

"That way," Hawthorne explains, "we didn't present the board with an accomplished decision which would have been harder for it to accept. Rather, we asked the board to hire an architect to carry out official technical studies which we couldn't do.

"In this way, too, the board and administration adopted and became enthusiastic about the plan. The board was in agreement on it before the citizens' committee ever took formal action."

The second citizens' committee move that helped guarantee ultimate success was its insistence that the board propose to the community not merely a bond issue for facilities needed immediately (the senior high addition and one new grade school), but also a complete long-range approach to meet all foreseeable building needs of the district—a second junior high (about 1964) and one more elementary school (about 1965).

"That way the people were not only voting now, but were in a sense committing themselves to additional expenditures down the road. These should be easier to sell later on—because no one can claim surprise," explains Hawthorne.

Publicists take over

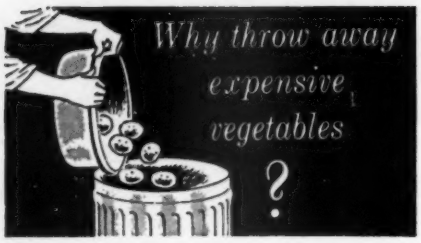
So well had the citizens' public relations committee done its work—through public meetings, periodic newspaper progress reports and a special four-page supplement about the bond election published in the formerly-antagonistic suburban newspaper—that hardly anyone turned out for a series of public information sessions between the school board's formal action in April and the May 19 vote.

"It scared the daylights out of us," Superintendent Kuhlman now admits.

For the few people who did attend these meetings—and through the press—it was made clear that the high school addition plan had the endorsement of the state department of education and possessed many advantages over the new school previously proposed.

"It's better because more people worked longer in the planning," summarized Hawthorne.

Specifically, the new addition will more than double the number of general classrooms (from 23 to 55), will add 11 science rooms, a new library and cafeteria, music room, art room, five business education rooms, study hall and two physical



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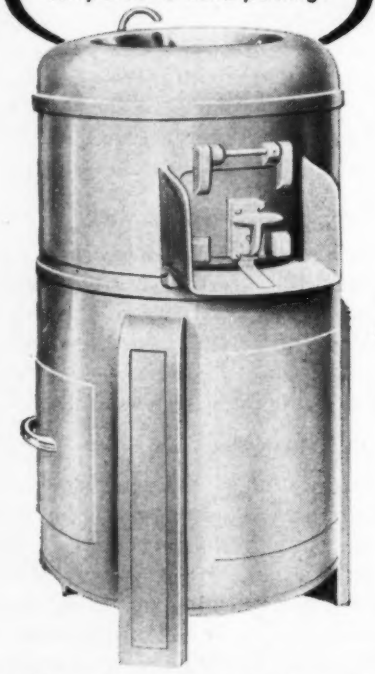

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education areas. Because it will extend along the north and east sides of the present school, the addition is called a "wrap-around."

For its first four years, the expanded senior high will house grades nine through 12 (rather than just the top three grades), permitting the district to defer building a second junior high school.

Kuhlman sees many specific advantages of this plan over the defeated one—not the least of which is the fact that building a second junior high, rather than a senior high, in western Edina will mean a second swimming pool for the community (none was included in the rejected new senior high). The two junior highs will be more like neighborhood schools, while Edina will have its only senior high on the campus site, near athletic facilities and the center of population.

Over one question—whether or not the new plan saves money—there has been no general agreement and probably will be none until estimates turn into actual spending.

While the high school addition will cost $2.8 million, compared to the $4.5 million proposed for the new school, the district eventually must build a $2.5 million junior high, which would have been unnecessary before. On the other hand, the $4.5 million senior high school would have accommodated only 1,800 students at the outset, and its expansion to 2,400 student capacity would have required at least another $1.3 million.

The citizens' committee estimates that, all told the new long-range program will cost Edina $7.7 million, compared to $8,387,500 for the former plan—a saving of $687,500, not including interest saved by deferring some expenditures.

Kuhlman, who at first saw little cost differential between the two plans, more recently said, "We believe a substantial saving will be effected. However, even if there were no saving, the plan has so many excellent qualities that it should still be enthusiastically supported."

By the evening of May 19, 1959, it was evident that the district's voters agreed with Kuhlman's sentiments. Though the question of whether there was or was not an actual dollars saving was still not settled, they voted overwhelmingly to support the bond issue. **End**

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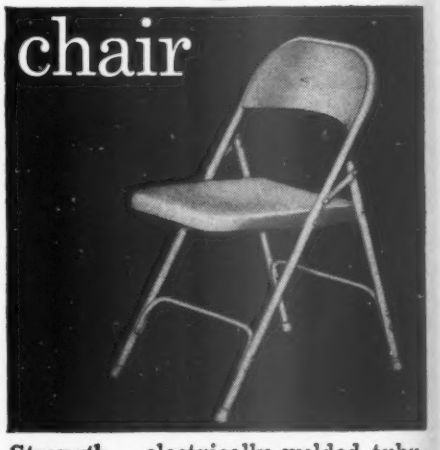

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continued from page 43

1. The increasing use of metal wall systems are familiarizing both architects and builders with their proper and more efficient application.

2. Increased production and competition among manufacturers tends to improve the quality of the product and lower its cost.

3. The increasing cost of labor contributes to the rising cost of the "hand-made" masonry constructions.

In the selection of wall construction the consideration of maintenance and operational costs is of primary importance.

Conclusion: *It appears likely that by a careful choice of materials the initial costs of exterior walls may be lowered by as much as 20% but, in doing this, maintenance costs may be increased. Assuming wall costs to be, on the average, 10% of the total building cost, it is doubtful that a net overall saving of more than 1% can be anticipated from this source.*

INTERIOR PARTITIONS

Realistic consideration of overall long-term costs is of particular importance in the choice of interior partition construction. This applies especially in considering the feasibility of using the "demountable" types. If it will be necessary to relocate partitions several times during the life of the building, then the initial use of the more costly moveable types can be economically justified. Studies of the costs involved show that even one relocation serves to equalize the costs of the demountable and conventional block type partitions and that each subsequent move adds to the cost advantage of the former. If, on the other hand, "demountable" partitions are selected because of the "possibility" of relocating them at some vague time in the future, considerable unnecessary expense will be involved.

Among the conventional partition types receiving the most attention in this study have been those built with lightweight block partitions and those constructed with steel studs, metal lath and plaster. Of the two, the latter appears to offer the greater economy and yet possesses essentially the same sound transmission reduction value.

There is a difference of opinion as to whether the substitution of paint for plaster on block partitions always reduces cost. Some contractors grant little credit for substituting paint for plaster, claiming that the extra care required in laying up the blocks offsets any theoretical saving. More of them, though, maintain that the use of painted block walls results in costs appreciably lower than the cost of plastered walls, provided that the architect is willing to accept the natural quality of the wall and does not insist on special precise workmanship. All are agreed that the use of stacked bond (bricks or blocks laid so that vertical joints conform in a straight line), for painted walls will nearly always involve a cost penalty of at least 30%, as compared with ordinary running bond. It is unrealistic, also, to expect economy when painted block partitions have buried in them any amount of conduit or piping; the extra cutting and patching work required prior to painting will often cost more than a covering coat of plaster. Some architects have found the use of steel-stud-and-plaster partitions to be a dependable source of economy, especially when the plastering is done by machine. This type permits almost any amount of piping and conduit to be buried.

Conclusion: *There appear to be several leads to possible savings in the cost of partitions: the use of moveable systems only where actually needed, a recognition of the inherent limitations of painted block and wider use of hollow constructions to accommodate service lines. The cost saving involved is indeterminate but will probably average less than 2% of the total building cost.*

COST OF CASEWORK

Casework (cabinetwork) is a relatively large factor in school costs. A sampling of five random schools showed it to vary as a proportion of total building cost from 3.9% to 9.2% (*see chart*). Investigation shows that certain potential economies can be realized if the following recommendations are observed:

1. Casework should be designed to be built off-the-job and brought in as finished units ready for installation. Only a minimum of cutting and fitting should be done at the site.

2. Repetitive designs should be used as far as possible, with a minimum number of different units. Units should be designed for multiple functions wherever possible.

3. The quantity of cabinetwork should be limited to actual need. Too often the cry of "more storage space" provides cabinetwork that isn't needed, resulting in reduced

COST OF CASEWORK IN FIVE SELECTED SCHOOLS

Example	Material	Labor	Total	School cost	Percent*
1	$73,000	$49,000	$122,000	$1,322,200	9.2%
2	30,000	17,000	47,000	843,600	5.6%
3	67,000	22,500	89,500	1,200,000	7.4%
4	92,000	24,000	116,000	1,712,000	6.8%
5	30,000	16,300	46,300	1,200,000	3.9%

*Percent of total cost represented by casework.

usable floor space and increased maintenance costs.

4. Cabinetwork can often be simplified in design, thus reducing initial cost, maintenance and up-keep expense. This applies particularly to sliding doors with complicated and expensive hardware, shelf brackets, drawers and runners. Initial equipment should satisfy minimum needs only.

5. The quality of material used is also an important consideration. There is little need of specifying clear stock, for instance, if the cabinets are to be painted.

Conclusion: *A reduction of about 20% in the average cost of casework appears to be a reasonable possibility. This would represent a saving of from 1% to 2% in overall building costs.*

THERMAL INSULATION

The value of adequate thermal insulation as an economy measure is too often disregarded. It applies only to operational costs, of course. Since such costs are usually underestimated as to their significance, this oversight is understandable.

The examination of a number of typical wall and roof constructions disclosed that by use of proper insulation the total long-term costs over a period of 30 years could be reduced from 11% to 22%. Heating costs alone can be reduced, in many cases, by as much as 75%.

Conclusion: *In the interests of overall economy, more adequate thermal insulation should be provided in the walls and roofs of school buildings. This will not usually lower initial costs but may result in savings of as much as 6% of total annual operating and maintenance costs.*

PREFABRICATED SCHOOLS

The term "prefabricated" is applied to such a wide variety of offsite fabricated elements that its meaning will be restricted for the purposes of this discussion. It will be used here with two connotations:

1. To denote school construction systems that build to a design fixed largely by the manufacturer.

2. To denote a system of components which may be assembled in a variety of ways, permitting the architect to give full consideration to specific functional requirements and site conditions.

This distinction is not sharply definitive, however, since some systems intended to possess the characteristics of the second category are forced, as a practical manufacturing expedient, into the first.

A prefabricated school that may be classified in the first category can, in general, be built for less money than comparable conventionally built schools, provided it is constructed substantially unchanged from the basic design offered by the manufacturer. When changes have to be made to accommodate functional layout, site conditions or special governmental regulations, the economic advantage is largely lost.

Conclusions: *At the present time there are no prefabricated school systems on the United States market that offer clear-cut economic advantages and still retain a substantial degree of flexibility in design.*

There undoubtedly is a promising potential for prefabricated systems, especially those that possess variable design characteristics. There may also be economy potentials for further development of systems fitting the fixed design category if generally acceptable basic designs can be developed for classroom and other components whose functional requirements are susceptible to a degree of standardization.

MAINTENANCE COSTS

It costs the taxpayer almost as much each year to run the school buildings as it does to acquire them. In looking for ways to save money, most of the attention has been directed to the acquisition costs (including debt service) while the upkeep costs have been largely taken for granted. In fact, high maintenance costs are sometimes knowingly accepted, to "worry about later," if the contract price can be reduced in the process. It is encouraging to note that increasing attention is being paid to upkeep costs and their overall significance. A 10% reduction in these costs is almost as important a saving to the taxpayer as a 10% reduction in the cost of the building, because maintenance costs endure for the life of the building, increasing, in fact, while payments on the initial costs end after 30 years or so.

Significant recommendations as to specific ways of reducing maintenance costs can be made only after a thorough study of the matter.

As an aid to the examination of this topic questionnaires were sent to 134 school maintenance personnel. Response to this questionnaire reflects the representative thinking of those closest to maintenance problems. Several items are noteworthy.

1. Terrazzo is preferred as a flooring material in corridors.

2. Slate is the outstanding choice among chalkboard materials.

3. Large window areas add significantly to maintenance costs.

4. There is a need for more instruction in maintenance problems and methods.

Part of the responsibility for maintenance costs is incurred with the design of the building. This long-term expense must consistently be a major consideration, if building costs are to be reduced.

The efficient conduct of maintenance work is most important. During the past 20 years the cost of cleaning a square foot of floor has quadrupled. The reason is that 90% of maintenance costs are labor charges. Industry in general has made amazing progress in bringing maintenance costs down, but until recently schools have largely ignored the need for scientific study of this significant item of expense.

Little attention generally has been paid, too, to the rising cost of fuel, typically the second largest item in maintenance and operating budgets. With small additional first cost, substantial annual savings can often be realized if heat losses are reduced by more adequate insulation.

Conclusion: *Costs of maintenance and operation account for a much larger share of the annual budget than generally realized. The potential economies here are significant but too frequently overlooked. With careful attention to the selection of materials and the efficient use of labor, maintenance costs should be*

susceptible to a reduction of at least 10%, a saving almost as important as the same proportionate reduction in the cost of the building.

MECHANICAL EQUIPMENT

There is a tendency to over-design heating and ventilating systems in schools. Some authorities consulted thought the reason for this was lack of information (at the time the basic design was established) as to final treatment of walls, amount of glass area, door area, etc. This could lead to over-estimation of probable heat losses. Others suggest that there is a tendency to over-design as a hedge against substandard construction. In several instances the detailing and fitting of doors and windows admitted several times the normal expected infiltration; the mechanical engineer would naturally be inclined to guard against such contingencies. All of this points to the fact that closer cooperation may often be needed between the architect and the engineer during early design stages.

HEATING AND VENTILATING

Doubts were expressed about the necessity of always basing the design of the system on minimum temperatures. The question was raised as to whether schools actually operate during the lowest temperatures, or are usually closed because of weather conditions. This applies, too, in questioning the real necessity of expensive stand-by heating equipment. It might be much more economical to close the schools for a day or two during the breakdown.

A strong feeling exists that the acceptance of some calculated risks on the part of the school authorities and the architect in respect to these matters would be both logical and advisable in the interests of reducing costs.

Conclusion: *It appears that in many cases the mechanical systems of schools are unnecessarily expensive; a more realistic consideration of needs may offer valid economies. These matters should be carefully and thoroughly investigated. Potential savings of as high as 15% of the heating and ventilating costs (or 1% of total building costs) are indicated.*

COSTS OF CONTROL EQUIPMENT

Many architects feel that temperature controls in school buildings are often unduly elaborate. Investigations show that the expense involved ranges from 7% to 20% of the cost of the entire heating and ventilating system. It has not been established what this optimum proportion should be but the indications are that an effective and satisfactory control system should probably cost no more than 12% of the total cost of the system.

On the other hand, it must be recognized that individual room controls, though relatively expensive in themselves, generally result in a saving in piping by eliminating the need for zoning.

Conclusion: *Much investigation remains to be done in the area of proper utilization of temperature control devices. It would appear that possible economies of 5% of heating and ventilating costs (about ⅓ of 1% of total building expenditures) might be realized in this area.*

PLUMBING SYSTEMS

Plumbing requirements, like those of heating controls, appear to have grown in complexity and cost until, as one individual remarked, "we almost have to put a toilet at every kid's desk." Another expressed the opinion that toilet accommodations seem to have been determined on the assumption that everyone in the school is going to use them at the same time. There is an apparent over-supply in the new schools.

The potential savings by means of standardization and shop assembly of supply and drainage systems (or at least substantial parts of them) seem to have been largely overlooked. The architect can do much to encourage such savings by arranging layouts and fixture positions so that runs are simplified, repetitive assemblies are used and more prefabrication is possible.

Conclusion: *Serious consideration should be given to reducing current standards of required toilet facilities to actual needs. More attention should be paid to the potential economies of off-site plumbing line assemblies. A saving of 20% in plumbing costs would lower overall building cost by about 1%.*

FIRE INSURANCE RATES

The relationship of fire insurance rates to school building economy should be considered from two points of view. Either the current cost of insurance may be taken as an immutable matter or, more objectively, the validity of current rate structures may be questioned. Both attitudes have been considered in this investigation.

Accepting the current costs of fire insurance as valid and inescapable, there are several means of saving costs which should not be overlooked:

1. The architect should always check preliminary school plans with the fire insurance rating organization, to see that the tentative building design permits the best rates.

2. School authorities should see that all unnecessary fire hazards are eliminated from existing properties.

3. The school board should take pains to see that only necessary insurance is carried on the most economical plan.

Conclusion: *Under present fire insurance rates possible economies in insurance costs are probably negligible in comparison with other means of saving. Serious attention should be given, however, to the validity of present rate structures. A general reduction of one-third would reduce overall annual building provision costs by about .08%.*

FINANCING

It is generally recognized that there are four principal methods of paying for schools:

1. Accumulating reserve funds in advance.

2. Using current revenue.

3. Short-term borrowing.

4. Long-term borrowing.

Not many school systems these

days are in the fortunate position of being able to take advantage of the savings inherent under either of the first two methods.

Few taxpayers seem to realize that, on the average, about one-third of the debt service cost is interest charges. Any reduction possible in these charges, therefore, is a significant overall economy.

Proper timing can save money. The school district will profit, too, if it can keep its credit rating high. A combination of good timing and high credit standing may mean a reduction of .5% in interest rates, which can result in a saving of about 2% on the total costs of housing school programs.

The annual costs of housing educational programs may be assumed to be about 22% of the total educational budget. Half of this 22% (11%) is maintenance, operating and capital outlay costs out of current income. The other half represents debt service (amortization and interest) on past construction. Thus, interest charges are about 3⅓% of total public school costs or 16⅔% of the total costs of school housing programs.

Substantial savings can be realized, also, by planning payments for early reduction of principal, rather than postponing the large payments until later. Thereby, reduction of total school housing costs by 6% or more is also possible.

Conclusion: *The difference in cost between expensive and economical financing programs can easily amount to 15% of the total building project cost. What share of such savings can be realized in the average case is problematical but in the search for economy, financing costs are highly significant. Expert guidance and advice should be considered mandatory.*

TIME ALLOWANCE FOR PLANNING

An important factor in achieving school building economy is the amount of time the architect is allowed for the planning process. Adequate time is essential for several reasons.

1. The architect needs sufficient time to review the educational specifications and to consult with interested school personnel.

2. Complete and accurate plans and specifications are necessary for close bidding. "Loose" design documents lead the contractor to include high contingency items in his bid as a matter of self-protection.

3. The architect must have ample time to coordinate all the structural and mechanical engineering elements of the job with the architectural. Close cooperation with the engineers results in a more complete and unified job, which integrates piping and duct-work in the design in the most economical manner.

4. Sufficient time for planning should result in greater building economies through more careful selection of materials by the architect.

Conclusion: *The cost savings, as reflected by lower bids, that might be realized by permitting adequate time for the architect's preparation of plans and specifications can easily amount to 5% of the initial cost.*

TIME ALLOWANCE FOR BIDDING

Just as it is essential for the designers to have adequate time for the preparation of plans, the contractors need sufficient time in which to prepare and check their estimates.

If the contractors are unduly pressed for time in preparing their bids, they will be unable to get many competitive bids from suppliers and sub-contractors or accurately estimate their own work, much less to check it carefully.

Conclusion: *Accurate and reasonable proposals can be expected only when contractors are allowed ample time to prepare their bids. (At least four weeks should be allowed on a $1 million job.) Failure to provide this allowance may increase original construction costs by up to 5%.*

CHOICE OF BIDDING TIME

The most advantageous time for taking bids on a proposed school depends on a number of variables. The location of the work, competing projects, seasonal factors and general economic conditions all have their effects on building costs.

It is desirable, of course, to request bids when there is no other large work being estimated in the area at the same time. By securing information from the local builders' exchange, school officials can usually determine the extent of building activity in their district and may be able to schedule their projects to take advantage of slack periods.

Conclusion: *The timing of bid requests can have a highly significant effect on school costs. Timing may be responsible for greater "savings" than any other economy measure. Although circumstances seldom permit taking full advantage of this fact, its importance should always be recognized.*

SPECIFICATIONS AND DRAWINGS

Bids reflecting savings to the school district can occur when all parts of the school are completely detailed and accurately specified. In this way guesswork can be eliminated and accurate quantities and prices can be determined. If the plans and specifications are incomplete or inaccurate, the contractor usually adds a contingency.

Conclusion: *The deficiencies found in many architects' specifications contribute to unnecessary building costs to a significant but indeterminate degree. This is an area which has been largely overlooked, but is deserving of constructive attention.*

ARCHITECTURAL SERVICES

Contractors attach a great deal of importance to the reputation for relative competence of architects. After a bid is prepared an "architect factor" is often added to cover anticipated difficulties. This may range from zero, in the case of the most capable and "business-like" architects, to 10% in cases where minimum cooperation and/or efficiency are expected as a result of previous experience and reputation.

Conclusion: *The competence of the architects, as reflected in their services during construction, have more effect on building costs than is generally realized. This effect is extremely difficult to evaluate dollar-wise but it appears that it may, in some instances, account for as much as 5% of the bid price.* **End**

Yours for the asking

continued from page 9

illustrates that company's complete line of record keeping equipment and supplies.

For a free copy of this booklet, circle number 880 on the Reader Service Card.

Science equipment. To help combat the sale of worthless science equipment and toys, a science material center has been established in New York City. The center has published a booklet outlining school science aids that have been tested and approved.

For a free copy of this booklet, circle number 876 on the Reader Service Card.

Shop equipment. A catalog of shop furniture and cabinets has been prepared by Parent Metal Products, Inc. It details the company's complete line of materials in this field.

For a free copy of this catalog, circle number 874 on the Reader Service Card.

Spotlights. Specification sheets and descriptive brochures on their entire line of arc and incandescent follow spotlights for schools have been prepared by the Strong Electric Corp. Foot-candle readings and diameters for flood to small spot sizes at various lengths of throws are provided.

For a free copy of these specification sheets, circle number 896 on the Reader Service Card.

Storage. How steel equipment and "storage engineering" are teamed up to help school planners provide adequate storage facilities is described in new literature available from Republic Steel Corp. A four-page illustrated brochure highlights ready-to-install steel units such as shelving, closets, cabinets, lockers, book cases, desks, kitchen equipment, and tool and shop equipment.

For a free copy of this brochure, circle number 893 on the Reader Service Card.

Table seating. A new line of table seating equipment for schools and institutions is detailed in a 16-page brochure published by Sico Mfg. Co. The literature pictures and describes portable folding tables, ranging from rectangular table and bench combinations of various lengths to portable units of round, square or rectangular shapes.

For a free copy of this brochure, circle number 860 on the Reader Service Card.

SM PRESS RELEASES

News from the business firms serving your schools

Skylights for better light

Structoglas fiberglass reinforced panels have recently been installed in a school in Lowell, Mass., to provide natural illumination over corridor areas. The skylights transmit softened sunlight which is diffused by corrugated sheets of shatterproof building material. Because of their structural strength, the panels were installed without complex framing or supports.

For more information, please circle number 847 on the Reader Service Card.

■ ■ ■

Better control of children

A new transistor-megaphone that weighs less than three pounds and is priced under $50 has recently been announced by the Audio Equipment Co., Inc. It provides teachers and athletic directors with positive control on playgrounds or athletic fields since a spoken message can be pin-pointed to children as much as 300 yards away. The unit runs on one nine-volt dry battery and is weatherproofed. It is light enough for a child to handle.

For more information, circle number 856 on the Reader Service Card.

■ ■ ■

Telescoping work platform

Overhead spot maintenance work reportedly may be facilitated with a compact telescoping work platform available from the Up-Right Scaffold Co. Known as an "Elevator-Size Tallescope," the device fits into any average size elevator or storage closet and rolls through doorways.

Made of aluminum, the unit is six feet long by six feet seven inches high and is 28 inches in width. It unfolds into a telescoping platform enabling maintenance personnel to reach heights of up to 20 feet.

For more information please circle number 894 on the Reader Service Card.

■ ■ ■

Elementary gym equipment

A new series of exercise equipment designed for elementary school children has been introduced by Fred Medart Products. Called the Phys-Exerciser, it is an assemblage of apparatus that can be used for a wide range of supervised body-building exercises. The entire unit is priced at less than any single purpose standard item of apparatus.

The Phys-Exerciser consists of two sturdy stands with padded and vinyl-covered tops with telescoping tubular steel legs, adjustable to different heights. Also provided are a balance beam, parallel bars and pommels. The stands and other equipment can be assembled for any selected type of exercise in a few minutes.

For more information, please circle number 872 on the Reader Service Card.

■ ■ ■

Stacking chairs for schools

Some unique features have been embodied in the new stacking chairs recently announced by Irwin Seating Co.

A stacking bar, with a heavy rubber bumper, completely eliminates metal

to metal or metal to wood contact when chairs are stacked for storage. The tubular steel legs are equipped with nylon glides which are said to reduce floor marking and to give more wear.

The chairs are available in six different seat heights from 12 to 17½ inches.

For more information, please circle number 879 on the Reader Service Card.

■ ■ ■

Folding table

A practical development in folding tables for multi-purpose rooms is available from the Mitchell Mfg. Co. The unit is available in a wide selection of table and bench top materials in colors. Completely portable, it can be folded compactly for ease in storage. The manufacturer claims that the table is tip-proof and exceptionally rigid.

For further information, circle number 846 on the Reader Service Card.

■ ■ ■

Detergent that kills germs

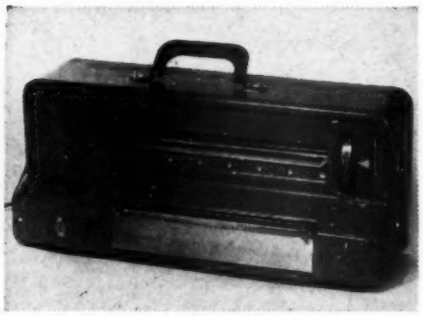
A new multi-purpose germicide combined with a soapless detergent has been developed by Huntington Laboratories. The cleaner will clean, disinfect and deodorize, all in one operation.

Developed especially for use in hospitals, the cleaner is equally appropriate in schools. Because it contains no soap, the cleaner doesn't require rinsing and leaves an active germicidal layer on surfaces cleansed. It is effective in any kind of water, hard or soft, hot or cold, and can be applied with a mop, sponge or rag. It will not injure surfaces that are not harmed by water alone.

For more information, please circle number 885 on the Reader Service Card.

Portable photocopy machine

A portable photocopying machine, designed and manufactured by General Photo Products Co., Inc., automatically exposes, processes and prints 60 to



120 copies per hour. It reproduces anything printed or written up to 9¼" wide by any length, including colors and ball point pen.

Completely self-contained, the machine weighs only 15 pounds and is equipped with a carrying handle for complete portability. Priced at $149, it is supplied complete, ready to plug in and operate, and with a lifetime service guarantee. The unit operates on 115 volts AC.

For additional information, please circle 878 on the Reader Service Card.

■ ■ ■

Gym, playground line marker

A new type of line marking equipment, designed specifically for schools, has been developed by Unimasco, Inc. It features a lightweight, highly portable unit powered by a small engine. Designed to handle all types of marking paint, it can be used for interior areas, such as gymnasiums, or on tennis courts or football fields.

According to the manufacturer, a tennis court can be painted in 14 minutes. In addition, a unique design feature permits the machine to make perfect circles of any diameter.

For more information and prices, please circle number 895 on the Reader Service Card.

■ ■ ■

Adaptable lab table

A new science table developed by Metalab Equipment Co. is specially designed to lend itself to any type of room layout using two and four student combinations in conjunction with lecture space, reference and demonstration areas.

According to the manufacturer, it is especially adaptable to existing buildings where varied room sizes preclude the use of conventional types of science equipment. Unit combinations are adapted to the teaching of all sciences by the selection of appropriately designed tables. Each has ample storage space and the table area per student is adequate for all science experimentation.

For more information, please circle number 841 on the Reader Service Card.

■ ■ ■

Indoor odor control

A portable light-weight unit that provides odor control in indoor areas has been announced by Airkem. The unit will treat up to 1,000 square feet and is particularly useful where odors result from poor ventilation—such as locker rooms, gymnasiums, etc.

A two-speed circulating fan distrib-

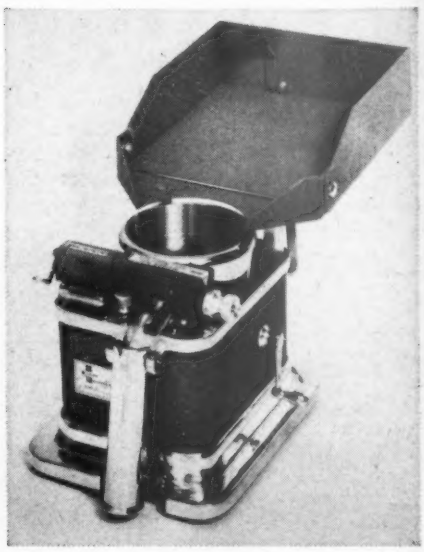
utes odor-counteractant throughout the room. A given charge is sufficient for several weeks of operation.

For more information, circle number 842 on the Reader Service Card.

■ ■ ■

Portable coin counter

A newly designed and larger reserve tray has speeded up and simplified



counting jobs using the Klopp portable counter.

The tray is an integral part of the coin counter which folds over the machine as a protective cover during transit. The machine itself counts up to 1,800 coins per minute, and inserts them in wrappers for deposit, all in a single operation. The machine can be used anywhere since it is completely hand operated and requires no electrical hookup.

For more information, circle number 903 on the Reader Service Card.

■ ■ ■

Dish and tray truck

A heavy duty stainless steel dish and tray storage truck has been announced by Lakeside Mfg, Inc. The new truck is designed and built to carry 500 pounds of dishes or trays safely and easily.

Only 32 inches high, the unit slides under average counters and may be loaded or unloaded from one side. Heavy duty, ball bearing eight-inch casters are said to provide fingertip handling.

Constructed of 18 gauge stainless steel with a one-inch by one-inch by ⅛-inch stainless steel angle frame, the truck has electronically welded seams. It comes equipped with accessories, including a hinged cover for complete sanitation, a removable front panel for easy cleaning and a channel bumper guard for full protection.

For more information please circle number 898 on the Reader Service Card.

■ ■ ■

New line of folding chairs

A newly-designed line of folding chairs has recently been announced by the American Seating Co.

The entire line, consisting of 32 separate chair models, uses five different basic seat constructions and three back designs.

These chairs were designed and manufactured to be completely free of binding, pinching, or snagging hazards. In addition, all models are available with seats that fold independently of the chair—a feature which enables closer back-to-back spacing, thereby increasing auditorium and multi-purpose room seating capacity.

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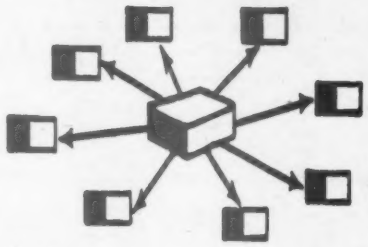

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Building: Ravenswood High School, East Palo Alto, Calif.
Architect: Janssen, Daseking & Keller, Palo Alto, Calif.
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